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CHATTANOOGA

AND

HAMILTON COUNTY, TENN.

BY

GEO. W. OCHS,

MAYOR OF CHATTANOOGA.

28257

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PREFACE.

THIS work is designed to present the main data and statistics regarding the City of Chattanooga and Hamilton County, Tennessee, and to sustain the claim that we have here natural and geographical advantages for great development. Its preparation has been a labor of love. If it causes anyone to become interested in promoting our growth, or if it stimulates our own citizens, I am more than repaid for my task.

The following are the members of the Executive Committee of the Exposition Commission, under whose direction this book was published: D. M. Steward, Jas. S. Bell, C. R. Head, W. J. Bass, Jas. C. Howell, T. T. Wilson, J. O. Martin, Taylor Williams.

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G. W. O.

CHATTANOOGA, MAY, 1897.

[Copyright, 1897]

CITY AND COUNTY.

CHATTANOOGA and Hamilton county seem to have been especially blessed with every resource and advantage which can contribute to industrial and commercial development. Many cities and counties possess some of the advantages that are found here, perhaps to an equal degree, but no other city or county in America possesses greater advantages. Chattanooga has every essential to future greatness, viz: healthful location, fertile soil, prosperous surroundings, abundant mineral and timber wealth, beautiful scenic attractions, rich historic associations, unsurpassed transportation facilities, a salubrious climate and a progressive and enlightened citizenship; the county has the most magnificent system of roads in the Southern states; its river bottoms are extensive and productive; the uplands yield fruits, berries and vegetables in great abundance; the mountains bear inexhaustible stores of minerals; the timbers of the county are of great variety. Undulating valleys, picturesque mountains, broad expanse of rolling plains affording every variety of scenery, produce almost all the crops known in the temperate zone and pour into the lap of industrious husbandry a wealth of richness rarely to be found in any one locality in this country.

Chattanooga is almost at the junction of the three great states, Tennessee, Georgia and Alabama, and by a caprice of nature, is the only situs for a city within a radius of many miles. In primitive days the untutored Indian saw here the advantages for a city and in the latter years of the eighteenth century it was the great camping ground of the most populous Indian tribes in the central south. During the civil war the captains of both armies discovered immediately the strategic importance of Chattanooga, and the city was the scene of the bloodiest battles of that sanguinary struggle to possess this key to the South, the final occupation of which by the Union army was the turning point of the war.

What the savage mind intuitively saw, what the military mind with scientific foresight discovered, the commercial mind has since appreciated, and nature's designs are now being carried forward with marvelous rapidity.

No city in the whole southern country has transportation facilities equal to Chattanooga. The Tennessee river, which almost entirely surrounds the city, is now open for navigation and vessels of six feet draught ply from Chattanooga to Ohio and Mississippi ports. Eleven separate and distinct lines of railway terminate here, diverging like the spokes of a wheel, to all points of the compass, representing five rival railway systems, close competitors, and wholly independent. The sharp competition between water and rail has materially reduced freight rates, and they become lower as the river traffic develops. The time is close at hand when Chattanooga will be made the basic point for freight traffic in the central south, and will then enjoy the distinct advantage which its physical location should command.

Chattanooga's climatic advantages are so remarkable as to seem almost unreal. The city averages over 700 feet above sea level, and is completely surrounded by mountains and ridges, cleft at every point of the compass by fertile valleys. The swift flowing Tennessee affords natural drainage and through the valleys mountain breezes always sweep, laden with the aroma of verdant forests, perfuming the atmosphere and eliminating miasma. The city is thoroughly sewered, and has over sixteen miles of permanent street paving. The death rate of the city averages for all colors, twelve fifty-two per cent. per thousand per annum, the white death rate going as low as nine per cent.; the average of American cities is nearly twenty per cent. The climate is similar to the golden mean of Italy, the annual average temperature of the past eighteen years, according to the report of the United

MOCCASIN BEND AND CHATTANOOGA, VIEWED FROM LOOKOUT MOUNTAIN.
The Tennessee river in winding about the foot of the mountain outlines an almost perfect reproduction of an Indian moccasin. The city of Chattanooga lies to the right
The photograph is taken nearly 2,000 feet above the river.

States Weather Bureau, being 60°; the mean temperature in the summer months is in the neighborhood of 72°, and in the winter months 43°. The county and city are natural health resorts by reason of the high elevation, the mineral springs of highly medicinal qualities which abound, the pure air and equable climate.

Chattanooga is the natural commercial entrepot of a district 200 miles square, in which 2,500,000 people reside. The river bottoms yield rich harvests of cereals and grasses, the mountains and ridges grow small fruits in abundance; over 1,000,000 pounds of berries, small fruits and early vegetables are annually shipped from Chattanooga to Northern markets, and Hamilton county is becoming one of the most important producers of early strawberries, tomatoes, sweet potatoes, grapes and small fruits in the Southern states. Within 75 miles of Chattanooga nearly 100,000 bales of cotton are annually raised; the culture of tobacco and of hops is becoming an important industry, and peanuts and other leguminous plants are being extensively cultivated in the county.

The area tributary to Chattanooga, is perhaps, the richest mineral region in America, as respects both quantity and diversity of resources. Coal and iron, limitless in quantity and of a uniformly high grade, are found in every hill and mountain; gold, silver, copper, zinc, lead, mica, asbestos and gem stones are profitably mined within 75 miles of Chattanooga; white, black and mottled marble, and good building stone are successfully quarried. Cement, slate, calcerous lime, kaolin, sand and potter's clay are also found in inexhaustible quantities, and are being successfully operated. Poplar, pine, gum, cherry, cedar, ash, oak, hickory and other hard woods, are easily accessible from Chattanooga, in large quantities.

Such marvelous deposits of all materials, boundless in extent and rich in quality, probably are found in no other region upon the globe, and all these natural advantages are the legitimate resources of Chattanooga.

The following figures of the United States' Census show the industrial growth of the city between 1880 and 1890:

	1880.	1890.
Number of Industries	58	283
Capital	$2,045,000	$6,673,515
Hands Employed	2,123	5,139
Annual Wages	$ 568,508	$2,419,446
Value of Product	3,230,000	9,449,387

The following are the statistics for 1897, as compiled for this publication by personal canvass; the number of industries includes only manufactories that actually produce materials for sale, and excludes laundries, blacksmiths, bakers, shoemakers, repair shops, etc., which were included in the census figures. The statistics of actual manufacturing plants, omitting all such as are enumerated above, are as follows:

Number of factories	161
Capital	$ 7,546,306
Annual value of product	11,802,600
Number of hands employed	6,182
Wages and salaries	$ 2,397,100

The Census Statistics show there was a uniform growth of about 400 per cent. in the decade 1880–1890, and the next census will show a growth equally as remarkable; during the same decade the population of the city and suburbs increased from 14,000 to 35,000, and is at present about 50,000. The assessed valuation of the city and county have correspondingly increased, likewise the banking capital, and in fact, in every element of growth there has been a uniform expansion both in the city and in the county.

The scenery about Chattanooga is romantic and historic. Lookout Mountain, Walden's Ridge, Missionary Ridge and Raccoon Mountain, completely encircle the city and afford a panorama

of such transcendent beauty and grandeur, that the name of this city has become famous as a point of scenic interest throughout the world.

The city is hallowed by sacred memories. Chickamauga, Missionary Ridge and Lookout Mountain are indissolnbly linked with the most tragic history of our country, and with each succeeding year the interest deepens in these battlefields where was exhibited the highest type of military heroism by American soldiers. The United States Government and all the states whose sons were represented upon those sanguinary battlefields, are now converting them into a National Military Park, which in extent and elaboration is the greatest military park upon the earth.

The population of Chattanooga and Hamilton county is cosmopolitan, containing a larger proportion of Northern people than any other section of the South, with but a small per cent. of foreign population. The city and county are typical American communities, imbued with all the characteristics which typify the average American settlements. All charitable, reformatory and benevolent enterprises are supported with a liberality and carried forward with a fervor more to be expected in an old community than in a new, rapidly growing town. Beautiful church edifices, nnmerons colleges and private seminaries, excellent public school system, handsome club buildings, an elaborate city auditorium, public libraries, many art, literary and musical societies, demonstrate the enlightened character of the community, while the many costly private residences, the splendid architecture of imposing business blocks and public buildings, show the artistic taste that prevails.

Nature has bestowed resources and potential factors of growth upon Chattanooga which are irresistible. The combination of advantages existing here, stimulates every endeavor and gives promise of a great futnre for this city and county.

Elsewhere in these chapters the various subjects are treated more at length, presenting the facts, statistics and reliable data relating to this city and county.

Lee & Gordon's Mill, National Military Park.

Reed's Bridge, National Military Park.

THE MINERALS OF THIS SECTION.

THE coal, iron ore and limestones of the Southern mineral region lie close together, intermixed and co-terminous, in an area of approximately twenty-four thousand square miles; ten thousand five hundred square miles of this area is in commercial reach of Chattanooga.

Her furnaces have profitably used coke from the Pocahontas mines and ovens in Southwest Virginia. The ores in this neighborhood have been used for mixing by the furnacemen in the Birmingham district of Alabama. In the region penetrated by Chattanooga railroads and the Tennessee river, there is a supply of coal greater than Great Britain had before her measures were touched by a miner's pick, and more iron ore, limestone and marble than was ever in the United Kingdom, and three times as much as the German supply. There are now mined in this area that may be made tributary to the city of Chattanooga, annually about two million long tons of coal, and six hundred thousand to one million tons of iron ore. In one-third this area Germany mines sixty-five million tons annually; Pennsylvania with an area not one-fourth larger, produced one hundred million tons of bituminous and anthracite last year. These figures will convey an idea of the possibilities of this district in the production of coal.

The coal, as respects quality is of every grade of bituminous, chiefly of good quality, most of it excellent. High quality gas coals are in great abundance. In Scott, Roane and other counties, one hundred miles or so north of Chattanooga, and convenient to the Cincinnati Southern Railway, there is an abundance of coking coal and a very fine quality of coke is being made at the different mines in Hamilton county; there is some cannel coal in upper East Tennessee.

In the Chattanooga district there are ten coke blast furnaces, which produce annually nearly three hundred thousand tons of pig iron. The annual amount of coal mined in Hamilton county is about three hundred thousand tons; in Marion county, two hundred and twenty-five thousand tons; in Rhea county, two hundred and twenty-five thousand tons; the total in the state three million tons.

The Chattanooga district produces about two hundred thousand tons of coke per annum. The coals in Walden's Ridge, which is the main spur of the Cumberland mountains, underlie that elevation an average of ten miles wide and one hundred and twenty miles long. These coals vary in kind and quality from the free burning and lighter varieties found in the Coal Creek region, to the heavy and hard coals found in the Sale Creek, Soddy, and North Chickamauga. There is enough fuel in that one mountain, to supply a million people with fuel, for all possible uses, for several thousand years, and the poorest of it is better than the best German coal. Great beds of this coal are within four miles of Chattanooga.

The fixed carbon in coals in this immediate locality varies from 84 to 94 per cent. and sulphur from 1 per cent. to as low as 1-10 of 1 per cent.

The iron ore of this region covers a great stretch of territory and is of two varieties, red and brown hematite. The brown ores lie in immense beds in the western part of McMinn and Monroe counties; some of them are of high quality, but mostly high in phosphorus and metallic iron. There are also large beds of this ore in upper East Tennessee, and great quantities about Cartersville, Georgia. The Georgia ore has served to make excellent open hearth or bessemer steel.

The red ores are everywhere in the Tennessee Valley; in the foot ridges of the Cumberland range, in Lookout and Chatta-

THE INN ON LOOKOUT MOUNTAIN.

It stands on the highest point of the mountain and commands an unsurpassed view. The building is 365 feet in length. The avenue extends to the brow of the mountain, distance about 400 feet.

nooga Valleys, south of the city in Georgia, across the Tennessee, within two miles of the city, and several hundred tons were dug out some years ago in the city limits. Down the Chattanooga Southern Railway, in Walker and Catoosa counties, Georgia, are millions of tons of high quality red ore that are being very cheaply mined. At Inman, Marion county, near the furnace plant at South Pittsburg, Tennessee, are large ore operations, whence many hundred thousand tons have been taken. These red ores are at many points along the river or railroads, can be put on cars or in barges at a cost ranging from 25 to 30 cents a ton. The ore supply of the district has barely been scratched here and there, not developed by any means.

A fine grade of manganese ore is abundant in this locality and it is very extensively mined within seventy miles of the city.

The limestones and marbles of this district are among the most valuable of its resources. There are millions of yards of pure dolamite, other millions of beautiful blue limestones, that make very handsome trimmings and walls, and wear like iron when crushed and used for road finish. Limestones are found in unlimited quantity up the Tennessee river, which are pronounced by the highest authorities to be the best quality of stones for bridge abutments and other structures requiring high crushing and resisting strength.

The marbles extend from Pickens county, Georgia, sixty miles below the city, to the upper counties of East Tennessee. They are of every quality of the variegated grades, grey, red, umber, brown, black and white. Some very beautiful monumental stones have been developed. The capacity of the East Tennessee quarries alone is in excess of twenty-five thousand cubic yards per month. Great quantities of the variegated marble are shipped to all parts of the world for furniture and other interior uses, from all parts of East Tennessee and other points tributary to Chattanooga. This interest has only been slightly developed.

The occurrence of mica is quite frequent in this section; a total of seven hundred and fifty-six thousand pounds was produced in North Carolina in 1896, most of which was produced within one hundred miles of Chattanooga.

Slate of a very high quality has been developed on Little Tennessee river in Blount county, East Tennessee, and other points in this region. The bed is one of the largest and best in the world; the slate can be barged to Chattanooga at a nominal cost of freight.

There are eight copper mines in Polk county, within sixty miles of Chattanooga, all of which are now producing ore, with several smelters in operation. These ores are copper pyrite and carry about 5 per cent. of copper.

At different points in East Tennessee zinc and lead operations are being carried on. At Clinton, in East Tennessee, there is a smelter with a capacity of one hundred and six pounds metallic zinc per day. Two thousand pounds of lead are daily produced in Bradley county, within forty miles of the city.

Oil has long been known to exist in commercial quantities in Fentress, Morgan, Overton, and other counties, within one hundred to one hundred and fifty miles of Chattanooga. It is now being developed rapidly, and the district promises to become highly profitable, the oil being in large supplies and of high quality.

The clay and kaolin deposits in this immediate section are of very great importance. Besides the coarser sorts there are fine stoneware clays which burn to a hard body of a good color, and there is a deposit of good ball clay; fire clays of high quality are very abundant.

There are in the city of Chattanooga two very large sewer pipe works, which use the clay of this immediate section very extensively and produce probably a larger amount of sewer-pipe

than any other city south of the Ohio river; the product is shipped to all parts of country. Stoneware clays are also being utilized in this county and several potteries are in successful operation, turning out a very large product.

Silica sand is very abundant, and some years ago large glass works were in operation here. The sands of this section possess a very high grade of silica and the glass industry could be very successfully prosecuted.

The production of mineral paint is a large industry at Chattanooga. Ochre is mined extensively near Cartersville, Georgia, and a fine quality of red and brown oxide exists in practically unlimited quantities in this region and makes a very superior paint.

The extensive deposits of asbestos, fibrous talc and soapstone which are found in our neighboring state of North Carolina, within seventy-five miles of Chattanooga, are utilized in a large local industry making gas tips and the other various articles into which those minerals are manufactured.

Water Wheel, Crawfish Springs.

Observation Tower, National Military Park.

Lulah Falls, Lookout Mountain

THE MANUFACTURING INTERESTS OF CHATTANOOGA.

THE manufacturing interests of Chattanooga have always constituted the main element of strength of the city, and its future development will undoubtedly lie in this direction. In successive chapters an effort is made to partially present the facts to show the remarkable diversity of raw material in the area of which Chattanooga is the center. The climatic advantages, the transportation facilities and the accessibility of these resources give Chattanooga distinct and unmistakable advantages for successful manufacturing.

Chattanooga for years has been known as "The Pittsburg of the South," and during the past ten years she has fully sustained this title. There is a greater diversity of manufacturing in Chattanooga, covering more varied branches, with a broader field of operations and wider territory, than at any other city south of the Ohio river. Chattanooga exports by far the largest variety of manufactured articles that are sent from any Southern city. The industrial growth of the city has been uniformly maintained by the diversification of its industrial interests. There are but few localities in the world where wood products, iron products and clay products can be manufactured with equal facility; but yet at Chattanooga the raw material for all these different branches exists in such abundance and such richness that operations in any one of these lines, conducted with prudence, industry and skill, invariably prove successful.

The fuel supplies of the city are inexhaustible; good steam coal can be had at the factory at 85 cents to 95 cents per ton; lumber is floated to the city in the log by millions of feet each year; iron ore and limestone abound all about the city; excellent kaolin and clays are within easy reach; in fact all the supplies and material for cheap manufacturing are assembled here in greatest quantity at minimum cost.

A very thorough canvass of the manufacturing interests of Chattanooga was made prior to the publication of this book. The effort was to procure the name of every manufacturing enterprise of the city, together with statistics giving its product, wages and salaries, capital investment and other details. Any investigation of a private nature is necessarily more or less hampered through the disinclination of manufacturers to divulge the facts relating to their business, but it is thought that the tables accompanying this statement are the most accurate and comprehensive that have ever been compiled. The totals are less in some features than the results obtained by the United States census enumerators, but this is due to the fact that the methods pursued and the objects sought were somewhat different. The United States census enumerators include in their reports, under the head of "Industries," all operations where persons were employed for wages, disregarding the fact as to whether or not they produced anything for sale, such as shoemakers, blacksmiths, bakers, laundries, etc. The table that is herewith subjoined comprises only a list of enterprises that produce material for sale; in fact it is limited to the legitimate and active manufacturing plants. The table also contains only such factories as are located within the corporate limits of Chattanooga or immediately adjacent thereto. There are a number of large industrial enterprises whose headquarters are at Chattanooga, but whose factories are located at some distance from the city, which are not embraced in the statistics of Chattanooga's manufactories. They do most of their business in this city, buy their supplies here, but their workmen could not be regarded as residents of Chattanooga or Hamilton county, hence they are not included. Among these institutions are the following: The Tennessee Paving Brick Company, capacity fifteen million paving brick annually, employing two hundred and fifty hands, with gen-

eral office and managers located at Chattanooga; the Roane Iron Works, operating coal mines and two large blast furnaces at Rockwood, Tennessee, employing in the neighborhood of five hundred hands, with headquarters and general offices at Chattanooga; the Walker Iron Company, operating a blast furnace and extensive mines, employing one hundred and seventy-five hands, with offices and manager located at Chattanooga; the Rome Iron Company, operating a blast furnace and mines, employing one hundred and fifty hands, general offices and general manager located at Chattanooga; the Oxley Stave Company, operating large stave and barrel works, at different points throughout the South, with general offices and headquarters at Chattanooga, and others.

Excluding these large enterprises, the tables show that the total capital employed in manufacturing within the city of Chattanooga and its immediate suburbs aggregate $7,546,300; the total annual value of the product is $11,802,600; the total number of hands employed, 6,182; amount paid in wages and salaries per annum, $2,397,100.

Analyzing the table further, shows the following interesting facts: 1,225 hands and $900,000 capital are engaged in the lumber and cognate industries; $690,000 of capital, employing 350 hands, are engaged in the leather manufacture; $200,000 of capital and 100 hands are engaged in coal mining and coke making; $750,000 capital, employing 750 hands, are engaged in working ores, clays, building stone, etc.; in iron and kindred industries there are 900 hands employed and $1,700,000 of capital.

The development of the manufacturing interests has been steady, but the greatest growth has been in the past ten years. The table shows that only seven of our industries were established in the years between 1865 and 1870, and proves that the real growth did not commence until 1885. The following table shows the date of the establishment of the various industries now comprising the manufacturing interests of Chattanooga:

7 in the years 1865 to 1870;
11 in the years 1871 to 1875;
14 in the years 1876 to 1880;
23 in the years 1881 to 1885;
44 in the years 1886 to 1890;
44 in the years 1891 to 1895;
13 in 1896 and 5 in the first four months of 1897.

If the rate of growth in new industries since the first of January, 1896, is maintained during the next five years it will show an increase in the manufacturing establishments for these five years of 67. There are now in successful operation in Chattanooga 62 manufacturing plants that were organized and established between the years 1891 and 1897, a period which is regarded as the most depressing in industrial development that the United States has ever experienced. Hence it is fair to conclude that if the rate of Chattanooga's industrial growth was greater during this depressing period than at any previous corresponding period in the history of the South, with the return to normal conditions, a phenomenal rate of industrial growth will occur.

Most of the plants that are now in operation at Chattanooga have been enlarged during the period of depression. When business again becomes active, as will inevitably be the case sooner or later, and the manufacturing interests that are located in Chattanooga at the present time relatively expand, the number of wage earners they will employ will double, for it is a fact that large as is the present output of the factories at Chattanooga, it falls far short of their full capacity.

Of the industries at Chattanooga, only thirty are wholly local in their territory. The majority send their products to all parts of the country, and some have a large export trade.

Chattanooga refrigerators have found their way to Cape Town, Honolulu, and the West Indies. Mexico buys Chattanooga telegraph equipment, hay presses, pig iron, pulleys, plows and the finer grade of grates and furniture. Cane mills and sugar evaporators of Chattanooga make go to Mexico, South America and the West Indies. Railway brake-shoes made at Chattanooga form part of modern railway equipment everywhere on the globe. Europe is a large buyer of Chattanooga slate pencils, pulleys, boat oars, leather and lava gas tips and puts a new label and fancy price on Chattanooga cotton oil. England and Canada order special machinery in large quantities from Chattanooga shippers, and a German pencil-making firm, through a plant at Chattanooga, is sawing and shipping for its own use immense quantities of Southern cedar. Austria buys Chattanooga cotton linters for carpet weaving, and shipments of Chattanooga paint are made to Yokohama and other remote ports of the world. Chattanooga wood working machinery is shipped to Bombay, Chattanooga saws to Siam, in fact Chattanooga skill and energy have converted raw material into merchantable products that are sought for at every mart in the Western and Eastern Hemispheres.

There are some lines of manufacture not carried on at Chattanooga which could be made very profitable, mention of which is made in other chapters. The manufacture of merchant bar iron and nails, of textile machinery, builder's hardware, edge tools, picks and shovels, hoes and rakes, dairy articles, textile goods, boots and shoes, etc., could be as successfully carried on at Chattanooga as at any point upon this continent.

The accompanying table comprises a partial list of the articles that are produced by the Chattanooga industries. The figures following each item refer to a corresponding number in the alphabetical table of manufacturing enterprises which follows:

Acetylene Gas Burners, 61.
Advertising Caps, 27.
Ammonia, 134, 139
Architectural Iron Work, 12, 49.
Architectural Sheet Metal, 47.
Asbestos Cement and Roofing, 45.
Asphalt Roofing and Paving, 45.
Awnings, 78.
Awning Frames, 108.
Babbitt Metal, 64.
Badges, Metal and Ribbon, 13, 57, 144.
Baking Powder, 134, 139.
Balconies, Iron, 108.
Bandsaws, 46.
Barges, 35, 112.
Base Ball Bats, 103.
Baskets, 3.
Bedsprings, Spiral, 56,
Beer, 17.
Bells (Steel Alloy), Church, School and Farm, 118.
Binders, 43.
Bits, 19.
Blank Books, 57, 91, 143.
Bluing, 134, 139.
Boats, 35, 112.
Boilers, 14, 85, 153.
Boiler Compound, 94.
Boxes, Paper, 84.
Boxes, Pasteboard, 43.
Boxes, Shipping (wire-bound) 80.
Boxes, wooden, 104.
Boxboard, 43, 95.
Brake Shoes (Railway), 118.
Brass Work, 64.
Brick, common, 44, 79, 135.
Brick, Fire, 87, 96.
Brick, Ornamental, 87, 96.
Brick, Paving, 96.
Brick, Pressed, 79, 135.
Bridges, Iron, 55.
Bridles, 19.
Bronze Tuyeres, 64.
Brooms, 18, 71.
Buckles, 19.
Builders' Material, 15, 32, 65, 86.
Building Castings, 12.
Burial Cases, 98.
Butter Dishes, 3.
Candies, 11, 60, 146.
Cane Cars and Cane Mills, 20, 39.
Caps, 27.
Capstan Bars, 103.
Carbonated Drinks, 16, 67, 97.
Cars (Cane, Mill and Mine), 20.
Car Brasses, 64.
Car Wheels, 20.
Carriages, 7, 8, 10, 59, 69, 123, 156.
Cartons, 84.
Caskets and Coffins, 22.
Castings, brass and bronze, 64, 114.
Castings, Iron, 12, 20, 24, 52, 113, 114, 118, 152, 155.
Castings, Malleable, 128.
Castings, Steel, 132.
Cedar Pencil Slats, 151,
Cement, 45.
Chalk, 61
Checks, Metal, 13.
Chewing Gum, 36.
Chimney Tops, 96.
Cider, 134, 139.
Cigars, 21, 70, 83, 89.
Circular Saws, 46.
Clothes Wringers, 142.
Coal and Coke, 26, 158, 159.
Concrete, 45.
Copper Work, 102, 127.
Cornices, 47, 108, 127.

A VIEW IN THE NATIONAL CEMETERY AT CHATTANOOGA.

The cemetery contains 75½ acres. Over 13,000 soldiers are buried there, of which 5,000 are unknown. $250,000 have been expended in beautifying these grounds

Cotton Hosiery, 31.
Cotton Presses, 117.
Cotton Seed Oil and Meal, 23.
Cots, 78.
Cracker Layers, 43.
Crayons, 61.
Cupolas, 14, 85, 153.
Cured Meats, 101.
Curtain Poles, 81.
Dog Irons, 114, 130.
Drain Tile, 87, 96.
Drills, 94, 107.
Electric Insulators, 61.
Electric Light and Power, 161.
Elevators, 138.
Engines, 33, 46, 148, 155.
Engravers, 115, 137.
Felt Roofing, 45.
Fencing, Iron, 9, 12, 108.
Fencing, Steel and Wire, 108.
Fertilizers, 119.
Fibre Board, Ware, and Steam and Water Gaskets, 95.
Fire Escapes, 9, 108.
Fireproofing, 96.
Fixtures, bank, store, etc., 92, 141.
Fixtures, Postoffice, 75.
Flavoring Extracts, 134, 139.
Flour, 10[illegible], 124.
Flue Lining, 96.
Fly Fans, 13.
Forgings, 20, 132.
Foundries, 14, 20, 52, 113, 118, 152, 155.
Friction Board, 95.
Furnaces, 39.
Furniture, all grades, 77, 88.
Furniture, Bedsteads, 1.
Furniture (fixtures) 65, 75, 92, 141
Galvanized Iron, 49, 102, 127.
Gas Pipe, Cast Iron, 24.
Gas Tips, Lava, 61.
Ginger Ale, 16.
Granite and Stone Work, 34, 133.
Grates, all kinds, 12, 102, 130.
Grate Bars, 14, 114.
Guard Railing, 108.
Hall Racks, Oak and Walnut, 25.
Handles, all grades and kinds, 103.
Harness, 58, 62, 76, 131.
Harrows, 39.
Hay Presses, 53, 117.
Heaters, 85.
Hollowware, 50, 102, 130.
Hominy, 100.
Horse Collars, 76, 131.
Ice, 4, 28.
Ice Cream Freezers, 66.
Interior Finishings, 32, 65, 86.
Inventors' Models, 75, 106.
Iron Seats and Vases, 12.
Jeans, 110.
Jeans Pants, 38, 110.
Kitchen safes, 1.
Ladders, 51.
Lath, 5, 32, 88, 126, 140.
Leather, 121, 125, 150.
Leather Belting, 150.
Letter Files, 84.
Lime, 72.
Lime Kilns, 85.
Linters, 23.
Lumber, 5, 88, 126, 140.
Machine Knives, 46.
Machinery, all kinds to order, 20, 33, 46, 52, 118, 148, 155.
Mantels, Iron, 12.
Mantels, wood, 92, 141.
Mattresses, 56, 77, 109.
Meal, 100, 116, 124.
Metallic Paint, 37, 90.
Metal Plating, 12, 130.
Models, 75.
Monuments, 34, 99, 129, 133, 147.
Mortar Colors, 37.
Mouldings, 32, 88.
Oars, 103.
Ornamental Iron Work, 12, 108.
Overalls, 38.
Patent Medicines, 6, 36, 63, 74, 105
Patterns, Metal, 64, 106, 128.
Patterns, Wooden, 75.
Pavements, 45.
Pea Hullers, 53.
Pig Iron, 30, 54.
Pike Poles, 103.
Pipe, Cast Iron, 24.
Pipe, Wooden, 25.
Pipe, Sewer, 87, 96.
Pipe, Culvert, 87, 96.
Pitch, 45.
Planing Mills, 15, 32, 65, 86.
Plows, 29, 39.
Plow Shapes, 29.
Portable Workhouses, 55.
Pottery, 157.
Powder, Black, 41.
Pulleys, Wood Split, 42.
Pulp Board, 43.
Refrigerators, 77, 82.
Roofing, Asphalt, 45.
Roofing, Steel, Tin and Iron, 49.
Roofing Paint, 45.
Rosin Board, 95.
Rubber Stamps, 13, 57, 144.
Saddlery, 76, 131.
Sad Irons, 130.
Safety Gates, R. R. Crossings, 118.
Sample Cases, 73, 111.
Saratoga Chips, 40.
Sash, Doors and Blinds, 32, 65, 6
Sash Weights, 114.
Sausage, 101.
Saw Mills, 33, 46, 52, 155.
Saw Mill Machinery, 33.
Saws, 46.
Seals, 13, 144.
Shafting, 132.
Sheet Iron Work, 85.
Shingles, 32.
Shirts, 48, 68.
Shoe Button Fasteners, 19.
Show Cases, 141.
Siding, Steel and Iron, 49.
Slack Barrel Cooperage, 72.
Slate Pencils, 61.
Soap, 120.
Stand Pipes, 14, 85.
Stencil Plates, 13, 144.
Stirrups, 19.
Store Fronts, 47, 49.
Stoves and Ranges, 50, 102, 127.
Stoves, Office, 118.
Stove Pipe, 49.
Stove Ware, 102.
Structural Iron, 55.
Sugar Evaporators, 14, 39.
Tannery Liquor Logs, 25.
Tarpaulins, 78.
Telegraph Cross Arms, 15.
Tent Poles, Pins and Pegs, 103.
Tile and Tiling, 12, 87, 96, 127.
Tin Roofing, 49, 102, 127.
Tinware, 102, 127, 136.
Tombstones, 34, 99, 129, 133, 147.
Traveling Goods, 73.
Trucks, 51.
Trunks, 73, 111.
Turnings, 75.
Vegetable Crates, 104.

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1	Acme Safe Co	1895	10	SE'n U. S.	$ 18,000	$ 30,000	20	$ 5,000	Bedsteads, kitchen safes
2	Bacher, Jacob	1885	100		1,000	2,000	1	500	Native wine
3	Benjamin Mfg. Co	1889	2	U. S.	15,000	30,000	40	7,000	High grade baskets, etc.
4	Big Spring Ice Co	1885	100		25,000	10,000	14	5,000	Ice
5	Blair, F. W	1888		N. Y. and N Eng.	15,000	75,000	40	20,000	Lumber
6	Bolton Remedy Co	1890		Sou. U. S.	1,000	2,500	2	1,000	Patent medicines
7	Booher, J. A. & Co	1896	100		1,500	5,000	9	3,000	Carriages, etc.
8	Book, S. H. & Co	1894	100		1,000	5,000	6	3,000	Carriages, etc.
9	Brown, T. W. & Bro	1892	10	Sou. U. S.	1,000	12,000	5	2,000	Wrought iron fencing, etc.
10	Bryan, Wm. N	1891	100		1,500	5,000	6	3,500	Carriages, etc.
11	Bukofzer & Co	1889	100		2,000	15,000	6	2,000	Confectionery
12	Cahill Iron Works	1875	10	N. America.	35,000	75,000	75	30,000	Grates, mantels, casting, etc.
13	Carl T. Painter Co	1884	50	Sou. U. S.	4,200	5,000	5	2,000	Rubber stamps, etc.
14	Casey & Hedges Mfg. Co	1889		N. and S. America	100,000	250,000	100	35,000	Boilers, standpipes, etc.
15	Central Mfg. Co.	1893	5	Mexico and U. S.	10,000	75,000	60	20,000	Telegraph cross arms, etc.
16	Chattanooga Bottling Wks	1887	60	Radius 150 miles	5,000	6,000	6	1,000	Carbonated drinks
17	Chattanooga Brewing Co	1888	50	Sou. U. S.	400,000	200,000	60	30,000	Beer
18	Chattanooga Broom Factory	1895	100		500	5,000	6	1,000	Brooms
19	Chattanooga Buckle Co.	1895	15	Sou. U. S.	10,000	8,000	8	2,500	Buckles, bits, bridles, etc.
20	Chattanooga Car & Fdy. Co	1875	5	Sou. U. S.	175,000	80,000	125	40,000	Cars, car wheels, forgings, etc.
21	Chattanooga Cigar Co	1890	100		3,000	15,000	12	5,000	Cigars
22	Chatta. Coffin & Casket Co	1887	5	SE'n U. S.	75,000	150,000	75	25,000	Coffins and caskets
23	Chattanooga Cotton Oil Co	1894		Can., U. S., Eu.	50,000	200,000	60	10,000	Cotton seed oil, hulls, etc.
24	Chatta. Fdy. & Pipe Wks	1877		U. S.	400,000	1,250,000	300	100,000	Cast iron gas and water pipes
25	Chattanooga Furniture Co	1875	5	Mexico and U. S.	50,000	75,000	75	25,000	Oak and walnut tables, etc.
26	Chattanooga Gas Light Co	1871	100		225,000	50,000	30	12,500	Gas and bye products
27	Chatta. Hat & Cap Mfg Co	1894		U. S.	2,000	16,000	15	3,500	Hats, caps, etc.
28	Chattanooga Ice Co	1890	90	Radius 100 miles	75,000	20,000	25	12,500	Ice
29	Chatta. Implement Wks	1895	15	Sou. U. S.	25,000	45,000	45	25,000	Plows and plow shapes
30	Chattanooga Iron Co.	1874	10	Mdl. & NW. U.S.	125,000	150,000	100	30,000	All grades coke pig iron
31	Chattanooga Knitting Mills	1896		SE'n U. S.	12,000	30,000	45	7,500	Cotton hosiery
32	Chattanooga Lumber Co	1892	60	Radius 300 miles	35,000	55,000	30	12,000	Sash, doors, blinds, etc.

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33	Chattanooga Machinery Co..	1887	30	Can., Eng., U. S.	$ 25,000	$ 30,000	25	$ 12,500	Saw mill & woodwork. mach.
34	Chat. Marble & Granite Wks	1895	50	Radius 100 miles	1,500	5,000	8	2,500	Monuments and tombstones
35	Chat. Marine Ways & Con. Co	1894	25	Miss. River trade	14,000	12,000	50	6,000	Boats and barges
36	Chattanooga Medicine Co...	1879	.....	U. S.	150,000	350,000	80	40,000	Patent medicines
37	Chattanooga Paint Co.....	1884	.....	U. S.	20,000	40,000	16	8,000	Metallic paint, mortar colors
38	Chattanooga Pants Factory..	1879	.....	Sou. U. S.	25,000	70,000	85	12,000	Jeans & cassimere pants, etc.
39	Chattanooga Plow Co.....	1878	.....	Mex., S. A., U. S.	250,000	400,000	250	150,000	Plows, cane mills, etc.
40	Chattanooga Potato Chip Co	1896	25	SE'n U. S.	1,000	3,000	5	500	Saratoga chips
41	Chattanooga Powder Co.....	1890	.....	Sou. U. S.	247,000	75,000	87	35,000	Black powder
42	Chattanooga Pulley Co.....	1888	.....	Europe, N. Amer.	40,000	75,000	40	15,000	Wood split pulleys
43	Chat. Pulp & Pulp Board Mill	1895	.....	U. S., ex. N. Eng.	36,000	75,000	30	9,000	Pulp board, etc.
44	Chatta. River Brick Co.....	1886	50	Radius 150 miles	25,000	17,500	35	10,000	Building brick
45	Chatta. Roof & Paving Co...	1888	25	Radius 150 miles	10,000	25,000	25	9,000	Roofing, flooring and paving
46	Chattanooga Saw Co.....	1881	25	Sou. U. S.	10,000	50,000	10	12,000	Saws, machine knives, etc.
47	Chatta. Sheet Metal Wks.....	1896	50	Radius 150 miles	1,000	4,000	7	3,600	Architectural sheet metal
48	Chattanooga Shirt Factory...	1894	100	.....	500	2,000	4	1,500	Custom made shirts
49	Chatta. Steel Roofing Co.....	1891	5	SE'n U. S.	40,000	150,000	25	12,000	Steel and iron roofing, etc.
50	Chattanooga Stove Co.....	1894	5	Sou. U. S.	75,000	100,000	80	45,000	Stoves and ranges
51	Chat. Wh'lbarrow & Truck Co	1896	30	Radius 150 miles	3,000	4,000	6	2,000	Wheelbarrows, etc.
52	Chickamauga F. & M. Wks..	1890	10	Sou. U. S.	25,000	20,000	10	5,000	Foundry.
53	Chickamauga Hay Press Co..	1891	.....	Mex., S. A., U. S.	5,000	15,000	10	5,000	Hay presses and pea hullers
54	Citico Furnace Co.....	1884	30	N. America.	200,000	350,000	150	50,000	Foundry and forge pig iron
55	Converse Bridge Co.....	1894	10	Sou. U. S.	20,000	75,000	50	15,000	Structural iron, etc.
56	Cramer, P. C.....	1885	5	SE'n U. S.	2,000	12,000	5	1,500	Mattresses, spiral bed springs
57	Crandall-Bradt Printing Co..	1876	50	U. S.	30,000	50,000	60	20,000	Blank books, etc.
58	Crescent Harness Co.....	1896	100	.....	1,000	5,000	2	1,000	Harness
59	Davied, John F.	1893	100	.....	1,000	3,500	4	2,000	Carriages, etc.
60	Dietzen, N. & Bro.....	1893	30	Radius 100 miles	3,000	10,000	8	3,200	Candies
61	D. M. Steward Mfg. Co.....	1887	.....	America, Europe	40,000	35,000	100	25,000	Slate pencils, gas tips, etc.
62	Dowling, W. J.....	1895	80	Radius 100 miles	300	2,000	2	700	Hand-made harness
63	Dr. H. S. Thacher Med. Co..	1890	5	Sou. U. S.	10,000	30,000	16	8,000	Patent medicines
64	Eagle Brass Works.....	1888	30	SE'n U. S.	7,000	16,000	7	3,900	Bronze & brass castings, etc.

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65	East Tenn. Lum. & Mfg. Co..	1887	90	Radius 100 miles	$ 20,000	$ 100,000	50	$ 15,000	Sash, doors, blinds, etc.
66	Economy Freezer Co.....	1894	.....	Sou. U. S.	1,000	2,500	15	2,000	Ice cream freezers
67	Enterprise Bottling Works..	1890	60	Radius 100 miles	10,000	10,000	10	2,000	Carbonated drinks
68	Eshleman, J. A.....	1885	75	Radius 100 miles	500	2,000	3	1,000	Custom made shirts
69	Fassnacht, A.....	1874	90	Radius 100 miles	3,000	8,000	7	3,000	Carriages, etc.
70	Flach, John.	1896	100	.....	11,400	12,600	7	4,800	Cigars
71	Frugal Broom Works	1895	100	....	300	1,500	3	400	Brooms
72	Gager Lime & Mfg. Co.....	1893	5	U.S. east Miss. riv.	45,000	35,000	50	15,000	White lime, cooperage, etc.
73	G. E. McKenney Trunk Co..	1889	75	Sou. U. S.	5,000	20,000	6	3,500	Trunks, sample cases, etc.
74	Gerstle, L & Co.....	1885	.....	Sou. & W'n U. S.	75,000	200,000	71	20,000	Patent medicines
75	Globe Pattern Works.....	1892	50	Sou. U. S.	1,000	6,000	6	4,000	Patterns, P. O. fixtures, etc.
76	Globe Saddlery Co.....	1887	90	SE'n U. S.	5,000	20,000	6	2,500	Saddlery and harness
77	Gottschalk & Co.....	1878	50	Sou. U. S.	35,000	15,000	20	7,500	Furniture, etc.
78	Grimm, J. & Co.....	1896	100	....	1,000	6,000	6	4,000	Awnings, tarpaulins, etc
79	Howard-Parks Brick Co.....	1889	50	Radius 150 miles	25,000	30,000	60	10,000	Brick
80	Howenstine, John.....	1896	.....	E'n U. S.	1,100	3,500	4	1,200	Wire bound shipping boxes
81	Jndd, H. L. & Co.	1889	.....	Sou. U. S.	65,000	45,000	50	15,000	Curtain poles, etc.
82	Keyser Manufacturing Co...	1895	.....	Forei'n trade, U.S.	40,000	80,000	50	20,000	Oak refrigerators
83	Kriegner, W. L.....	1893	100	....	1,000	4,000	3	2,000	Cigars
84	Kuster & Thompson.....	1887	75	SE'n U. S.	10,000	14,000	16	6,000	Paper boxes, letter files, etc.
85	Lookout Boiler & Mfg. Co...	1887	5	SE'n U. S.	10,000	75,000	40	15,000	Boilers, standpipes, etc.
86	Lookout Planing Mill.....	1888	100	.....	12,500	50,000	20	10,000	Sash, doors, blinds, etc.
87	Lookout Sewer Pipe Co.....	1890	.....	Sou. U. S.	80,000	70,000	80	25,000	Sewer pipe, drain tile, etc.
88	Loomis & Hart Mfg. Co.....	1865	5	U. S.	200,000	370,000	250	110,000	Furniture and lumber
89	Loudenber, F. W. & Co.....	1891	50	Radius 200 miles	1,000	4,000	3	2,000	Cigars
90	Lowe's Metallic Paint Co....	1872	.....	U. S.	8,000	15,000	8	4,000	Metallic paint
91	MacGowan & Cooke.....	1886	60	Sou. U. S.	20,000	30,000	30	12,500	Blank books, etc.
92	Mighton, J. S. (agent).....	1891	60	Radius 100 miles	2,000	4,000	6	2,400	Mantels, office, store fixtures
93	Milburn-Bass Wagon Co.....	1896	5	Sou. U. S.	100,000	200,000	125	45,000	Farm and plantation wagons
94	Miners Supply Co.....	1389	50	Sou. U. S.	2,000	2,500	2	1,000	Mining drills, etc.
95	Mission Ridge Fibre Co.....	1897	5	U. S.	10,000	15,000	6	6,000	Fibre board, fibre ware, etc.
96	Montague & Co	1865	.....	SE'n U. S.	100,000	60,000	90	30,000	Sewer pipe, drain tile, etc.

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97	Mountain City Bottling Wks	1894	100	.....	$ 3,000	$ 6,000	5	$ 1,500	Carbonated drinks
98	Mount. City Burial Case Co..	1894	10	W'n U. S.	20,000	50,000	30	12,000	Finished burial cases
99	Mountain City Marble Wks..	1897	30	Radius 100 miles	1,500	5,000	5	1,500	Monuments and tombstones
100	Mountain City Mill Co.....	1891	15	SE'n U. S.	200,000	1,500,000	135	45,000	Flour, meal, etc.
101	Mountain City Packing Co..	1890	.....	SE'n U. S.	15,000	60,000	9	3,500	Sausage and cured meats
102	Mount. City Stove & Mfg. Co	1885	8	Sou. U. S.	40,000	100,000	60	35,000	Stoves, ranges, etc.
103	National Boat Oar Co.....	1897	.....	U. S. and Europe	25,000	50,000	35	12,500	Oars, handles, etc.
104	Nees, W. R.....	1894	100	.....	1,000	2,000	3	1,000	Vegetable crates, etc.
105	New Spencer Medicine Co...	1894	.....	S ou. U. S.	15,000	25,000	15	8,000	Patent medicines
106	Nixon Manufacturing Co.....	1892	10	Sou. U. S.	2,000	10,000	3	1,500	Cast iron hardware, etc.
107	Nixon Ratchet Min. Drill Co	1888	20	Sou. U. S.	2,000	2,500	2	1,000	Mining drills
108	Ornamental Iron & Wire Co	1894	25	Sou. U. S.	3,000	25,000	8	4,000	Fencing, balconies, etc.
109	Parham, M. B.....	1881	25	Sou. U. S.	8,000	30,000	8	2,500	Mattresses.
110	Park Woolen Mills.....	1896	.....	U. S.	100,000	250,000	150	35,000	Jeans, linsey, jeans pants
111	Peake's Trunk Factory.....	1879	100	.....	2,500	5,000	2	1 000	Trunks, etc.
112	Perry, A. R.....	1882	50	Tenn. River trade	10,000	12,000	20	4,000	Boats and barges
113	Phoenix Foundry Co.....	1880	100	.....	7,500	15,000	10	5,000	Foundry
114	Price & Evans Mfg. Co.....	1887	.....	Mdl. & Sou. U. S.	8,000	30,000	20	6,500	Sash weights, washers, etc.
115	Respess Co (The).....	1897	20	Sou. U. S.	4,000	10,000	8	5,000	Engravers
116	Ridgedale Mills.....	1896	75	Radius 150 miles	2,500	12,000	4	1,500	Meal and feed
117	Roanoke Iron & Wood Wks..	1887	35	SE'n U. S.	5,000	5,000	5	2,000	Hay and cotton presses
118	Ross-Meehan Foundry Co...	1889	2	Sou. U. S.	80,000	150,000	135	60,000	Railway brake shoes, etc.
119	Scholze Bros	1882	100	.....	20,000	40,000	15	5,500	Fertilizers
120	Scholze Bros. & Co.....	1887	25	Sou. U. S.	10,000	35,000	10	5,000	Laundry soap
121	Scholze, Robert.....	1872	100	.....	20,000	50,000	30	10,000	Leather
122	Severin, A.....	1875	100	.....	1,000	2,000	2	1,000	Native wine
123	Shaff, C. W.....	1888	75	Radius 100 miles	4,000	6,000	8	4,000	Carriages, etc.
124	Shelton Mills.....	1879	.....	SE'n U. S.	75,000	500,000	40	25,000	Flour, meal, etc.
125	Sherman Heights Tannery...	1895	20	East Miss. River	40,000	40,000	20	7,500	Leather
126	Snodgrass & Field.....	1880	5	N. Y. and N.Eng.	50,000	200,000	60	25,000	Lumber
127	Snow, T. A. & Co.....	1873	30	SE'n U. S.	50,000	100,000	30	15,000	Stoves, ranges, etc.
128	Southern Mal. Iron Wks.....	1891	2	Sou. U. S.	80,000	250,000	140	50,000	Malleables and castings

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129	Southern Monumental Wks.	1882	20	SE'n U. S.	$ 1,000	$ 8,000	4	$ 2,000	Monuments and tombstones
130	Southern Queen Mfg. Co.....	1892	25	SE'n U. S.	10,000	35,000	50	18,000	Nickel, brass, bronze grates
131	Southern Saddlery Co.....	1894	10	Son. U. S.	25,000	70,000	30	16,000	Saddlery and harness
132	Southern Steel Works	1883	10	Sou. U. S.	10,000	7,500	13	4,000	Steel castings and forgings
133	Southern Stone & Marble Co	1888	25	SE'n U. S.	2,000	9,000	8	3,500	Marble and stone work
134	Stagmaier & Fletcher.....	1882	30	Radius 200 miles	25,000	40,000	18	8,000	Baking powders, etc.
135	Standard Pressed Brick Wks	1890	30	SE'n U. S.	15,000	10,000	15	2,500	Pressed brick
136	Stevens, A. S.....	1891	100	.....	1,500	4,000	4	1,800	Tinware
137	Suverkrop, R. E. M.....	1891	75	Sou. & E'n U. S.	1,000	2,000	1	2,000	Designing and engraving
138	Sybilla, F. & Co.....	1893	100	.....	2,000	3,000	2	1,000	Elevators
139	Talbott & Cavender.....	1888	15	Sou. U. S.	12,000	50,000	10	7,500	Bluing, baking powder, etc.
140	Taylor & Crate.....	1882	.....	N. Y and N.Eng.	75,000	100,000	50	25,000	Lumber
141	Tenn. Fix. & Show Case Co..	1893	60	Mdl. & Sou. U. S.	2,000	16,000	10	8,000	Show cases, etc.
142	Thornton, Wm.....	1896	100	.....	1,500	2,000	2	1,000	Clothes wringers
143	Times Printing Co.....	1869	40	Sou. U. S.	200,000	150,000	135	80,000	Blank books, publishers
144	Tischer, Joe.....	1887	75	SE'n U. S.	500	1,000	2	600	Rubber stamps, badges, etc.
145	Tolley & Betterton.....	1897	50	Radius 200 miles	15,000	50,000	10	5,000	Lincoln county corn whisky
146	Trigg, Dobbs & Co.....	1895	25	Radius 100 miles	8,000	30,000	15	5,000	Candies
147	Troutt, John	1880	50	Radius 150 miles	4,000	20,000	10	7,500	Marble, granite, stone work
148	Truxal & Dunmeyer Mfg. Co	1870	85	SE'n U. S.	30,000	15,000	15	6,000	Engines, machinery, etc.
149	Union Feed Co	1891	10	U. S.	15,000	40,000	20	7,000	Stock remedies
150	United States Leather Co...	1876	.....	Europe, U. S.	500,000	350,000	250	100,000	Leather
151	Von Hardtmuth, F.....	1894	.....	Germany	35,000	45,000	50	15,000	Cedar pencil slats
152	Wagner's F. & M. Wks.....	1879	20	SE'n U. S.	10,000	20,000	25	12,000	Foundry
153	Walsh & Weidner.....	1889	10	Sou. U. S.	30,000	110,000	75	25,000	Boilers, etc.
154	Wells, J. W. & Bro.....	1876	80	Radius 75 miles	10,000	10,000	25	6,000	Brick
155	Wheeland's Machine Wks...	1874	10	Sou. U. S.	80,000	53,000	50	22,000	Engines, etc.
156	Wilson, T. J.....	1886	90	Radius 150 miles	3,000	12,000	10	4,500	Delivery wagons, buggies, etc.
157	Chattanooga Pottery Co.....	1885	15	Sou. U. S.	50,000	30,000	25	18,000	Pottery
158	New Soddy Coal Co.....	1866	60	Radius 150 miles	150,000	150,000	300	110,000	Coke and coal
159	Sale Creek Coal & Coke Co..	1868	35	Tenn. and Ga.	50,000	50,000	65	24,000	Coal
160	City Water Co.....	1867	100	.....	1,000,000	110,000	30	25,000	Water
161	Chatta. Light & Power Co. .	1881	100	.....	150,000	50,000	25	18,000	Electric light and power

THE IRON INDUSTRY.

THE Iron Industry of Chattanooga is more varied and extensive than that of any other city in the South and it is steadily growing in importance.

There are in the city and suburbs thirteen iron foundries, two cast pipe foundries (one of which is perhaps the largest iron pipe foundry in the world), two blast furnaces, besides other important iron making industries which embrace everything in the line of foundry job work, specialties in the way of cast-iron pipe, malleable iron castings, stoves and hollow-ware, stationary engines, saw mills, cars, agricultural implements, cane mills, evaporators, architectural material, mantels and grates, boilers, tanks, standpipes, builders' hardware, etc., etc.

The Chattanooga foundries consumed during the year 1896, in the manufacture of their product, over 25,000 tons of pig-iron, besides a large variety of other forms of iron and steel, representing a larger consumption of raw material for conversion into finished product than is reported from any other city in the Southern states. The foundries of Chattanooga are prepared to pour the largest castings and produce the heaviest forgings that can be manufactured in the South. There is no better point in America to locate a merchant rolling mill.

The manufacture of hardware and builder's material and tools, textile machinery and the better quality of machine equipment, has been neglected in the South, but no city in America offers superior advantages for a profitable investment in this branch of industry. By virtue of its location on the Tennessee river, which is navigable almost the year round to connections with the Ohio and Mississippi ports, having rival railway lines in every direction, it is an ideal place for the assembling and distribution of materials. Beds of coal and iron ore are found along the lines of all these railways and also on the river, within easy reach of Chattanooga, the iron ore cropping out within the city limits and coal of a very high grade existing in abundant quantities within six miles; an abundant supply of limestone of excellent quality also lies about the city. The juxtaposition of these raw materials within such close reach of the city gives unsurpassed facilities for the manufacture of pig-iron in almost any required analysis, at an exceedingly moderate cost. The product of the Chattanooga iron furnaces commands a high price in all the markets of the country and one of the Chattanooga furnaces sells most of its material to the higher grade of hardware manufacturers in the East, on account of its superior quality.

The new cast-iron pipe works of the Chattanooga Pipe & Foundry Co., which has just been erected at a cost of nearly one-third of a million dollars, is one of the most elaborately equipped pipe works in the world, being furnished throughout with the most improved electric appliances, the pits, cranes, and in fact all the manipulation in the manufacture of cast-iron pipe being entirely new and having been erected in the light of modern electrical achievements. The capacity of this plant will be nearly 300 tons of cast-iron pipe per day.

Chattanooga's iron industries are destined to become of great importance for emphatic and obvious reasons, which briefly are:

1st.—Abundance, excellence and cheapness of raw materials for the production of both iron and steel.

2nd.—Exceptionally good transportation facilities by rail and river.

3d.—Central location in a large territory which she can reasonably hope to supply against all competition.

4th.—Physical, climatic and artificial attractions that make the place inviting both to the citizen and to the visitor, insuring enl htened and reliable class of labor.

Market Street Chattanooga, Tenn., in 1895.

Looking up East Eighth Street, Chattanooga, from Broad.

CHATTANOOGA IN 1863.

This photograph shows the city of Chattanooga as it appeared when occupied by the Union troops in 1863; the army tents are in the foreground. The population of the city at that time consisted chiefly of soldiers.

THE TIMBERS OF THIS SECTION.

THE annual cut of Timber in Chattanooga from the log is nearly twenty million feet and the total amount of timber annually handled in this city for manufacturing purposes is almost fifty million feet. This is exclusive of the lumber sold from this city in an unmanufactured state.

The chief wood in this locality is oak—white, red, spanish, overcup and chestnut, or tan bark. This wood in some localities runs fifteen thousand feet to the acre, the trees varying from twelve inches to four feet in diameter. About five million feet come annually to the city by water, in logs, selling at the wharf at $6.00 to $9.00 per thousand in the log. It is used very extensively here in the manufacture of furniture and for building material.

Chattanooga is a large buyer of tanbark, and nearly fifteen thousand cords are annually sold, a considerable portion coming by wagon.

Poplar also grows very extensively throughout this country and is a strictly first-class wood, the trees varying from twelve inches to six feet in diameter, often running as high as thirty thousand feet to the acre. It is very accessible and from twelve to fourteen million feet annually come to this city in logs and sell at from $6.00 to $12.50 per thousand feet. It is used largely for building purposes and also used in wood products.

Pine, yellow and white, is found extensively throughout this locality, on the ridges and mountains; the trees run from eight to thirty inches in diameter, grow in clusters, and vary from four to five thousand feet in each clump. About a million feet of yellow pine come to the city annually in logs, selling at about $6.00 per thousand. Five hundred thousand feet annually of white pine are rafted here and sold at about $9.00 per thousand.

Sweet gum is largely used in this city for furniture, butter-dishes and baskets, selling in the log at $6.00 per thousand; about three-fourths of a million feet annually arrive here in rafts.

Maple is used in the manufacture of furniture and pulleys, about one-fourth of a million feet per annum coming to the city, the trees varying from twelve to twenty-four inches in diameter, and in some localities there are from ten to twelve thousand feet to the acre, selling in the city at an average of $10.00 per thousand feet.

From one-third to one-half a million feet of bass-wood are annually brought to to the city by river, averaging $7.00 per thousand in the log; it is used in the manufacture of coffins and furniture. A good quality of ash grows in this locality, selling at from $6.00 to $12.50 per thousand feet, the annual receipts by river being in the neighborhood of one hundred thousand feet.

There is some walnut left in this section, but it is rapidly becoming scarce, the annual receipts by water growing less each year; it sells as high as $50.00 per thousand in the log.

Beech is very abundant and also chestnut; cherry and cedar or juniper, are found in many localities in this immediate section.

Among the hard woods that are procurable in this locality are box-wood, hickory, laurel, hackberry, black locust, buckeye and considerable persimmon, and all other woods that are indigenous to this climate. The forests of oak, pine and poplar are very extensive and show scarcely any appreciable diminution in supply.

THE WOOD-WORKING INTERESTS.

EQUAL in importance in all respects with the iron industry is the wood-working industry of Chattanooga. It is very rare that these two great lines of manufacture are correspondingly developed in the same locality, but such are the wonderful resources of this city that in each branch, both iron and wood, it enjoys almost unsurpassed facilities.

The manufacture of wood products has been for years a prominent factor in Chattanooga's diversified industries. Chattanooga now leads the South in the manufacture of furniture, coffins and refrigerators. The manufacture of furniture in Chattanooga commenced about twenty years ago; the articles first made were of the cheapest description, out of the commonest material, consisting of cheap bedsteads, kitchen tables, kitchen safes, etc. The demand grew rapidly, the quality of the goods steadily improved, the markets broadened, new factories were erected and the industry developed to a marvelous degree. Today a very high grade of furniture is made in Chattanooga from all the leading cabinet woods, including oak, walnut and mahogany. Chattanooga furniture is now sold in every Southern state, many Northern states, all the Eastern states and to some extent in foreign countries.

The city is exceptionally well located for the successful manufacture of furniture and wood products, as it is one of the very best primary hardwood lumber markets in the South. The timber is taken from forests adjacent to Chattanooga, consequently heavy freights on manufactured lumber are saved by the manufacturers, while in shipping they have the very closest competition to all the markets of the world. The Chattanooga wood-working industries are putting in the latest and most approved wood-working machinery, as fast as it is placed on the market. The policy of the Chattanooga manufacturer in this branch is to meet the demand for better goods, and as fast as any new method for the manufacture of furniture, or for new styles is introduced, it is promptly applied by the local manufacturers.

The manufacture of coffins has become a very important industry, there being now three large factories engaged in this line, with prospects of a fourth. The largest refrigerator manufacturing establishment in the South is located in Chattanooga, and its product is found in every state and is gaining a considerable sale in South America and European markets.

The gradual but substantial development of the wood-working industry here has educated a most desirable class of labor and in this respect this city enjoys facilities over any other Southern city in the quality, skill, reliability and character of the labor adapted to the wood-working industry. The city thus has every advantage—a good lumber market, reliable labor, the experience and energy as well as the capital which is identified with this branch, rail and river competition, the most improved methods used in manufacture and a reputation for a high quality of product.

THE TEXTILE INTERESTS.

THE best argument that Chattanooga is a desirable point for textile industries is the fact that there are numbers of cotton, woolen and knitting mills in and around Chattanooga that have done and are now doing a profitable business. Some have had phenomenal success and none have shut down on account of trade depre-sion or low prices. It is reported that one mill in the immediate vicinity of Chattanooga has realized an annual dividend in excess of 25 per cent. in the most depressed times. This county now has one knitting and one woolen mill and there a is company formed to build a yarn mill.

Very few points in the South have better advantages for cotton manufacturing; the climate is favorable, being neither hot nor cold and the atmosphere is humid enough to admit of spinning fine yarns. The winters are short, thereby saving considerable in fuel for heating purposes. The average temperature, according to the United States Weather Bureau, for the last seventeen years is between 60° and 61°; during the month of January in that period it averaged between 37° and 50°; during February between 40° and 50°; during March between 47° and 53°; during April between 57° and 62°; during May between 66° and 72°; during June between 74° and 77°; during July between 75° and 79°; during August between 75° and 79°; during September between 68° and 73°; during October between 60° and 66°; during November between 47° and 52°; during December between 39° and 43°. The annual mean dew point in these seventeen years ranged from 48° to 50°. The annual average relative humidity during that period was in the neighborhood of 74°, going as high in 1893 as 81° for the year.

The proximity to raw material is another great advantage. For a number of years from twenty to forty thousand bales have been handled annually by cotton merchants in this city; twelve thousand bales could be purchased annually directly from wagons delivering in this city, three thousand bales from an adjacent county, forty thousand bales in contiguous territory along the We tern & Atlantic Railway, fifty thousand bales on other lines in a territory within seventy-five miles of this city; about one hundred thousand bales are available by the Tennessee river between Chattanooga and the month of the stream. The Bender or long staple cotton can easily be transported from the Mississippi Valley to this city at low rates, by rail or water, boats being enabled to deliver cargoes of lumber and cereals from this section and return laden with cotton.

The cotton in the territory contiguous to Chattanooga ranges from middling to strictly good middling in the Georgia section; in North Alabama, from ordinary to middling; the celebrated Coosa long staple is within fifty miles of this city. A fine grade of cotton is raised between Bridgeport and Decatur, Alabama, and is brought to Chattanooga by boat. Seven lines of railroads which radiate from this city run through the cotton country nearly their entire length, and hence afford ample facilities for all supplies.

The fuel question enters largely into the manufacture of cotton and an excellent quality of steam coal can be bought at from 75c to $1.00 per ton.

There is a surplus of white labor in this immediate section, living in and around Chattanooga, and while most of it is unskilled, it is characterized by cheerfulness, industry, appreciation and quickness to learn. Strikes are unknown, and there has been no unfriendly legislation as to the employment of children. All the cotton and woolen mills in this locality are operated exclusively by native help, and as evidence of its abundance, one textile manufacturer in Chattanooga states that within five months he had

over twelve hundred applicants by actual count, for employment, by girls ranging from twelve years of age upwards, and he says the native help he has employed is very active and apt at acquiring the work. Their pay ranges from $1.50 to $4.50 per week, averaging between $2.50 ond $3.50 per week.

Building material in this section is very cheap. A good quality of brick work can be contracted at from $6.00 to $7.00 per thousand in the wall, and lumber of the very best quality is worth from $10.00 to $15.00 a thousand.

With the competitive transportation facilities and abundance of raw material and the other advantages, but few localities in this country have equal facilities for textile manufacturing and this industry in the near future will become of very great importance in Chattanooga. It is a noteworthy fact that two of the largest mills that have been transferred from New England to the Southern states, involving an expenditure of nearly two million dollars, have been located within seventy-five miles of Chattanooga.

BANKS AND BANKING.

THERE are seven banks doing business at Chattanooga with an aggregate capital and surplus of $1,567,000, with total deposits averaging during April, 1897, $3,150,000. The average bank deposits have increased in the past three years, in the consolidated banks, an average of $900,000.

The Chattanooga banks during the depressing period of the past three years have been conservatively managed and have maintained an unimpaired credit, steadily increasing their surplus and net profits with a continual increase in deposits.

The following is a list of the banks now doing business in the city:

The First National.
The Third National.
The Chattanooga National.
The Citizens' Bank and Trust Company.
The Chattanooga Savings Bank.
The Bank of Chattanooga.
The South Chattanooga Savings Bank.

The First National Bank of Chattanooga is one hundred and fourth in the list of National banks of the United States, rated according to the excess of surplus and undivided profits over capital, and carries a line of deposits averaging about one and a quarter million of dollars. The other banks are strong, with increasing business, under most excellent management.

GRAIN AND MILLING.

CHATTANOOGA, by reason of its geographical situation, is the natural market for an immense agricultural area lying along the Tennessee river in the states of Tennessee and Alabama, as well as the country adjacent to the numerous railway lines running west and east. The river bottom lands along the Tennessee are especially adapted to the growth of corn, in fact, this section produces that cereal in its most perfect state. It is of the soft variety and makes a very nutritious bread, and its good qualities in that respect are well recognized facts throughout the South where our markets are found. It also possesses peculiar merits as a food for fattening hogs, and Tennessee raised bacon once enjoyed an almost national reputation, the grain imparting a peculiar sweetness to the meat, not found in the Western raised animal.

The amount of corn shipped into Chattanooga by river is not far from seven hundred thousand bushels annually, and fully as much if not more finds its way here by rail. Fifty per cent. of this corn is manufactured into meal and grits by our local mills, and the balance is shipped south by our grain dealers. The average value per bushel for the past season has been about 33 cents.

Chattanooga has three large roller flouring mills, with the most modern equipments, whose daily capacity is in the neighborhood of twelve hundred barrels per day, and being a recognized milling center, is one of the largest wheat markets south of the Ohio river, the daily receips aggregating six thousand bushels, or nearly two million bushels annually. Nearly all of this wheat is manufactured into flour by local mills. This large consumption and a ready cash market have stimulated the farmers of this section to renewed interest in wheat raising and they are increasing their areas, and selecting the best varieties for sowing, and caring for the crop after harvesting. Tennessee furnishes a goodly amount of this supply, and the berry is of good quality, well adapted for flour purposes and is appreciated by our millers. The value of wheat for the past season has averaged about 70 cents per bushel.

About one hundred and fifty thousand bushels of oats are annually marketed here, and while the oat is a cold climate cereal, our soil seems well adapted to its growth.

About one hundred thousand bales of millet, red top, timothy, clover and other varieties of hay are sold in our local markets per annum. Perhaps forty thousand bales of this quantity are home raised and command fair prices. The average price of hay for the past season has been about $13.00 per ton.

As the population of the city and surrounding country increases there will be a greater demand for grain products, and Chattanooga will become a distributing center for a much wider area of country.

Our farmers are progressive and thrifty and have displayed much energy in bettering their condition. This result is manifesting itself in the purchase of improved farming implements, as the agricultural houses of this city can testify.

LABOR AND WAGES.

THE laboring classes in Chattanooga as a rule enjoy a high order of intelligence. Very many of them own their own homes, and their social, intellectual and physical condition is very gratifying. A considerable percentage of them are substantial, influential citizens, some occupying positions of high re sponsibility and trust.

Notwithstanding the industrial and financial depression which existed all over the country in the past four years the manufacturing institutions at Chattanooga kept steadily at work and the condition of the laboring classes was well maintained. Skilled labor receives good wages at Chattanooga and common labor is low, owing to the large element of colored labor. The cost of living is the main factor in fixing wage earnings and experienced and conservative workingmen, who have been employed both North and South, state that wages of $2 per day at Chattanooga, with the low cost of living, are equivalent to $2.50 to $2.75 per day in the North, where the winters are long and food products and rents are high.

Some of the largest manufacturers in Chattanooga today came here as workingmen, without a dollar of capital, and by frugality, industry and perseverance are now at the head of large and prosperous manufacturing institutions. A considerable percentage of the older settlers among the mechanics own their own homes, and numbers have saved considerable money. The different trade unions are well organized, but they have at all times kept conservative and prudent officers at the head of the organizations, and there has been very little friction with their employers. No serious strikes or lockouts have ever occurred in Chattanooga, and as a rule all differences have been amicably adjusted by arbitration; never in the history of the city has there been either riot or violence. The relation between labor and capital at Chattanooga has always been more friendly than is usually found in this country, largely due to the cosmopolitan character of the community.

The secret societies are largely made up of the wage earners and they are conspicuous in all benevolent and charitable work.

WAGES.—Common labor ranges from 80 cents to $1 and $1.25 per day. The following is a fair estimate of the prices paid skilled labor:

Blacksmiths, railroad and machine	$2.50 per day
Blacksmiths, horse shoers	1.75 " "
Brickmasons	2.50 to 3.00 " "
Machinists	2.50 " "
Carpenters	1.75 " "
Painters	1.50 to 2.25 " "
Tinsmiths	1.50 to 2.50 " "
Moulders	2.00 to 2.50 " "
Stonecutters	3.00 to 3.50 " "
Typesetters	2.50 to 3.00 " "
Type machine men	3.00 to 3.50 " "
Pressmen	3.00 " "
Boiler makers	2.50 " "
Motormen and street car conductors	1.50 " "
Machine wood workers	1.50 to 2.25 " "

COST OF LIVING.—As rents are low and fuel is cheap and the climate equable, the cost of living is very low. The following prices will convey some general idea:

Flour	$4.50 per barrel
Beef	9 to 10 cents per pound
Bulk meats	6½ to 8 cents per pound
Bacon	9½ to 10 cents per pound
Hams	11 to 12 cents per pound
Butter	18 to 25 cents per pound
Eggs	8 to 10 cents per dozen

House rent in good location: Six rooms, $8 to $10 per month; four rooms, $6 to $8 per month; fair location: Six rooms, $6 to $8 per month; suburbs, with good street car service: Four to eight room house, $6 to $15 per month.

THE BOULEVARD, MISSIONARY RIDGE.

The United States Government has built a boulevard from the National Park at Chickamauga along the crest of Missionary Ridge, extending 8½ miles. The point illustrated is immediately east of Chattanooga, about 2½ miles distant. Along the boulevard are many state monuments and observation towers. The tower in the background marks the point where Gen. Bragg viewed the battle of Missionary Ridge.

RAILROADS.

CHATTANOOGA is a great railroad center by virtue of its geographical and physical situation. Railroads gravitate to Chattanooga just as business gravitates to such points as is best adapted to its successful prosecution, and though this city is the converging point for eleven lines of railroad, not a dollar, with but one exception, has been given by Chattanooga to influence their coming.

The railroads radiate from Chattanooga like the spokes of a wheel, and the title, "Hub," can be with literal truth applied to this city. Take the city as the center, and imagine the radiation of the spokes. Extending due northeast is the great Southern Railway system from Chattanooga to Washington via Asheville and Salisbury, or via Morristown, Bristol and Roanoke. Extending north is the Cincinnati Southern Railway from Chattanooga due north to Cincinnati; northwest the Nashville, Chattanooga & St. Louis Railway, from Chattanooga to Nashville and the northwest; west the Memphis & Charleston, from Chattanooga to Memphis and the west; southwest the Alabama Great Southern, from Chattanooga to Birmingham, Meridian and New Orleans; southeast the Chattanooga Southern Railroad from Chattanooga to Gadsden, Alabama, and with early prospects of being extended due south; south, the Chattanooga, Rome & Columbus from Chattanooga to Rome, Carrolton, Georgia, connecting with the Plant System; southeast, the Georgia Division of the Southern Railway from Chattanooga to Dalton, Rome, Atlanta and the coast; south, the Western & Atlantic from Chattanooga to Atlanta; the Chattanooga & Lookout Mountain Railway from Chattanooga to Lookout Mountain.

The city is girdled entirely by the Belt Railroad, which connects with all the main lines and all the leading industries. It will be noticed that these eleven railroads are parts of six separate and independent systems. The sharpest competition exists between rival systems, North, East, West and South, and in addition the river enters as a most important competetive factor. The consequence is, that freight rates cannot be maintained at exorbitant figures. Even roads foreign to Chattanooga, and only remotely interested in her traffic, have representatives here, and this general competition is the safeguard that forever precludes discriminating rates.

Chattanooga lies within one night's ride of every river crossing from Cincinnati, Ohio, to New Orleans, La., and within as easy reach of all South Atlantic ports, thus it is inseparably linked with the greatest producing territory of the North and Northwest, West, Southwest, and the great exporting harbors of the South Atlantic Ocean.

Freights and passengers are accommodated by ample warehouse facilities, and two large passenger depots, fitted up with all modern comforts and conveniences. There is no convenience shippers or travelers may desire that is not supplied. Through freights may be sent to any point in the United States; through tickets to any point the traveler would go to are kept on sale, and these may be supplemented in the city with tickets on any of the Trans-Atlantic steamers.

Chattanooga is the headquarters of the Chattanooga Southern Railroad, and the division headquarters of the great Southern Railway system. In this connection it also might be proper to state that Chattanooga is the headquarters of the Southern Express Company, where they have erected a very commodious structure, giving employment to over one hundred and fifty officers and clerks in the auditing and traffic departments.

Fifty-two passenger trains arrive and depart daily from the city, and an average of about eighty freight sections leave the city daily.

A VIEW OF CHATTANOOGA.
Taken from Brabson Hill, in the northern portion of the city, looking southwest, with Lookout Mountain in the background.

MERCANTILE INTERESTS.

THERE are eight hundred and ten firms and industries doing business in Chattanooga in mercantile and industrial lines. The jobbing business of the city, with some additional capital, could be very greatly extended. The wholesale grocery business is represented by seven houses, which are doing an increasing and profitable business, over a wide territory. There is one exclusively wholesale dry goods firm and two firms that do a wholesale and retail business. The boot and shoe trade is represented by one exclusively wholesale house, with the prospect of another's being opened in the fall; there are, however, five houses doing a wholesale and retail business in this line. There is no exclusively wholesale clothing house in the city; there are six retail houses, some of which do jobbing business to an extent. There are eight wholesale and retail hardware houses, four of which are chiefly wholesale. There are three large agricultural implement houses doing a wholesale and retail business, besides two large manufacturers of agricultural implements. Mining, milling, furnace and railroad supplies are represented by two houses doing an extensive wholesale business. Two firms represent the wholesale drug business, and twenty-seven firms the retail business. There are four wholesale and retail paint and oil firms; two wholesale and retail glass dealers; two wholesale confectioners, and ten wholesale tobacco and cigar firms; three wholesale and retail furniture, three wholesale liquor, four wholesale lumber and four wholesale oil dealers.

There are good openings in this city for the following lines: wholesale jewelry house, wholesale boot and shoe house, wholesale hat and caps, wholesale clothing and wholesale crockery and queensware houses. The wholesale business is susceptible of very great extension. The retail business is well covered in all the various lines. There is a great diversity of manufactures, as appears elsewhere in the table devoted to that subject, but there are openings for various lines of manufacture, in which there is almost a certainty of large profits if the business be conservatively managed. Among the manufactures for which the city has special facilities, are the following: All kinds of handles, carpets, woodmantels, boots and shoes, water-closet and bath-room supplies, baby carriages, small iron pipe, wooden and willow-ware goods, pulleys, chairs, cotton goods, white lead, hoes and tools, textile machinery, typewriters and supplies, glass bottles, builder's hardware, merchant and bar iron and nails.

Lookout Mountain, from the bank of the Tennessee river, near Chattanooga.

CLIMATIC CONDITIONS.

THE subject of climate is of transcendent importance and nothing bears a greater influence in the diversified and complex relation of man considered either from a political, physical, social, moral or industral standpoint.

The climate of Chattanooga is salubrious, healthful and invigorating. The city is so completely encircled by high hills and mountain ranges that destructive winds have no scope for devastation. A study of the tabular statement of the climatic conditions as compiled hy the United States Weather Bureau at Chattanooga, shows a condition of equable salubrity to be found at very few localities. Killing frosts rarely occur later than March or earlier than late in October and the seasons show no extremes of either heat or cold. The average temperature for spring in the last fifteen years has been 60°; for summer, 76°; for autumn, 61°, and for winter, 44°; and the average mean temperature of this city for the past eighteen years is 60°.

The rainfall as is shown by the statistical tables is evenly distributed, and there is no excessive downpour at any period of the year, nor are there any prolonged drouths. A study of the tables shows an ideal climatic condition. As illustrative of the balmy weather enjoyed by this locality, a study of the clear and fair days during each season is of interest. In the past fifteen years the average number of sunshiny days in winter is 53, cloudy days, 37; in spring, sunshiny days 67, cloudy days 35; in summer, sunshiny days 82, cloudy days 20; in autumn, sunshiny days 68, cloudy days 23.

The average direction of the winds is as follows: January northeast, February south, March northwest, April south, May south, June southwest, July southwest, August northeast, September northeast, October northeast, November south, December northwest.

The following table shows the weather for each month for the years named, giving the temperature, the rainfall and relative humidity:

MEAN TEMPERATURE.

YEAR.	JAN.	FEB.	MCH.	APL.	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	AN'L
1879	45.4	40.4	54.6	58.2	70.4	74.9	81.1	73.8	68.1	67.2	52.9	49.8	61.4
1880	52 2	48.2	53 8	62 2	71 4	76 0	77 8	78 0	68.4	60 2	45 4	38.1	61 0
1885	38 4	38.4	45.7	60.9	66 6	76.7	79.3	77.6	70 4	56.5	49.1	41 6	58.4
1890	50 4	54.0	48 8	62 4	68.0	78 9	78.8	75.0	71.5	59.5	55 8	44.8	62.3
1893	33 8	46.2	50.6	63 8	66 8	74.6	80.5	77.0	71 6	60 2	50.6	44 5	60 0
18 4	45.6	43.6	55.6	61 6	67.7	75.7	76.6	77 6	73 8	61 7	47 6	44 6	61.0
1895	37 9	38 8	49.8	60.0	65 4	75.9	76 2	77.4	75.3	57 2	51.5	42.6	58 6
1896	41 6	43 7	48.1	65.0	74.0	75.0	78.5	80 4	73.1	60.3	54 2	43.7	61.5
Average 18 years													59 8

TOTAL RAINFALL.

YEAR.	JAN.	FEB	MCH.	APR	MAY.	JUN.	JUL.	AUG.	SEP.	OCT.	NOV	DEC	AN'L
1879	8.48	5.85	3.27	3.02	1 51	1 69	5.17	4.78	2 54	4 36	2 89	8 47	52 03
1880	4.84	2 75	12.16	10.37	6 21	2 37	5 13	3 33	5.20	1.69	8 82	5 46	67 97
1885	8 49	3.50	1.79	1.60	5.12	6 09	4 86	4 06	6.48	5 03	6 18	3 41	56.61
1890	4.68	7.85	4.78	3 94	3.95	3.12	4 43	5 15	7.10	4.13	0.16	3 13	52.42
1893	2.39	8.02	2.55	5.88	8.35	6 31	1 24	4 18	2 19	0 98	1.91	3.46	47 46
1894	4.63	5 22	4.61	2 00	1 53	1.77	3.66	2 96	1.67	2.18	0 54	6.45	37.22
1895	6 58	2.14	5.86	3.61	3 52	5 69	6.71	4 40	1 00	2.00	1 71	3.11	46.36
1896	2 90	4.84	3 21	3 31	3 76	2 64	5.80	1.90	2.01	1.06	5.51	0.83	37.77
Total normal for 17 years													54.97

RELATIVE HUMIDITY.

YEAR	JAN.	FEB	MCH.	APR	MAY.	JUN.	JUL.	AUG	SEP.	OCT.	NOV.	DEC.	AN'L
1879	78	64	61	56	60	61	65	77	74	75	68	77	68
1880	75	62	67	64	70	69	73	77	78	75	68	73	71
1885	73	73	66	68	74	77	80	81	81	77	72	67	74
1890	81	79	69	66	72	74	77	79	88	80	72	73	76
1893	89	92	79	79	86	90	72	75	76	78	74	77	81
1894	78	72	64	57	72	64	70	76	76	63	65	74	69
1895	75	63	67	64	74	70	78	82	77	64	71	75	72
1896	74	64	75	62	70	72	80	70	65	69	76	70	70
Average 18 years													72

The mean dew point for the past eighteen years was 49.5.

HEALTH AND MORTALITY.

PERHAPS the most pleasant chapter with relation to Chattanooga, is its wonderful health record, the most emphatic confirmation of which is the official statement of the Board of Health, showing a death rate of 12.52 per thousand per annum, for all colors, while the average death rate of American cities approximates 20 per thousand per annum.

Chattanooga is a city of hills, the highest about three hundred feet; the height above sea level is consequently variable, ranging from six hundred and seventy-five to eight hundred feet. The soil is red clay, principally; in the hills are found blue and white clay, with a drift gravel, iron ore, shale, flint gravel and veins of an inferior grade of bituminous coal. Limestone is abundant.

The Tennessee river is the principal source of the water supply. While in the rainy season the water is often muddy, it is pure from a sanitary standpoint. The river contains on an average about 6.1 grains of solid matter to the imperial gallon, of which 1.17 grain is organic matter and 4.93 inorganic. Analysis shows the inorganic matter to be as follows:

Silica, insoluble	0.562	grains
Silica, soluble	0.141	"
Iron oxide	0.285	"
Alumina	trace	
Calcium carbonate	3.367	"
Magnesium carbonate	0.356	"
Alkalis	0.216	"
Sulphuric acid and chlorine, each	trace	
Total	4.927	grains

The health of the city is phenomenal and the cause is apparent. The tripod of health is pure air, pure water and pure food; of the first and second Chattanooga has an ample supply and is better provided with the third than most other cities North and South. The sewerage system of the city is very complete and the streets are well paved. The city is kept clean, no stagnant pools or other foul conditions exist within the corporate limits. Nature has furnished a perfect drainage, and efficient sanitary laws remove any deficiencies that might otherwise remain. It is exceedingly uncommon for infectious diseases to assume the proportions of an epidemic here, so unfavorable is the environment for the development and propagation of disease germs. The fact that contagion has been brought into the city from other places where it prevailed was hardly to be avoided by a city so exposed by railroads, but the specific germ so imported has always found here a sterile soil and thus died out without multiplication as often as it came. Typhoid fever has never been prevalent since the prohibition of shallow wells and springs, and its occurrence is very rare, with no tendency to spread. The number of malarial diseases, never very large, has diminished rapidly with better drainage, improved pavements and the covering up of low, moist places of the city with good houses. In fact there are now no local conditions at Chattanooga for the production of any special class of disease. Every winter scores of persons suffering from pulmonary affections come here from colder and more fitful climates of the West and East to spend the season, and in the majority of cases wonderful improvement has resulted.

A prominent physician who came to the city from his home in Massachusetts, because of his lung troubles, speaks as follows of his experiences here:

"Who among us is not mindful of the rich delights of our usual March climate? March! that month of terror in other latitudes, brings us the blossoms of spring in rich profusion, the working days in our gardens and flower beds, and gives us a noonday warmth of 80°, while the coolness of night rarely causes the mercury to fall to 40°. April follows with its luxuriant wealth of

flowers in field, forest and lawn; the rich and varied verdure of the mountain slopes; the grand picnic days; the profusion of blossoming laurel and azalea; the time when we feel most the exhilaration of a tonic atmosphere, and youth comes again to age. And then follows May. Beautiful! beautiful! glorious May! Who can describe an East Tennessee May in any other way than by exclamations? May flowers! No indeed! We squander those in March. We hurry past our roses of the commoner sorts in April and come into the realization of the complete bliss of living in the real native land of the continual blossoming rose, in the early day of May, when the black boys peddle young mocking-birds through the streets, and the luscious red strawberries come, so sweet, so plenty and so welcome. And then comes June. Young summer, older than May, wiser, larger, fuller, and bringing the first harvests of ripened grain; holding in its provident lap the most liberal bestowals of the Almighty in reward for the labor of man, with a great bonus of earth's spontaneous fruits! And there are no hot days yet. No sweltering nights. Can a better summer resort be pictured? If consumptives want altitude and mild climate together, and upon that all authorities agree, it is to be found here. These mountains are so common to us, who use them for daily, weekly and monthly convenience in the summer days, a sleeping place away from the dust and mosquitoes, as well as cooler home quarters, that we have no just appreciation of them. But the mountains of East Tennessee are destined to occupy a high place in the public estimation, in future, as a living place for invalids."

Another leading physician says: "I know that I have seen consumptives carried up the mountain and ridges about Chattanooga, apparently in the last stages of phthisis, coughing incessantly, and yet live for months, slowly improving every day until thinking they were nearly well, they left the mountains, went back to the Northern climate, and in a few weeks the inevitable occurred. I have visited nearly every house on Walden's Ridge (within ninety minutes' drive of Chattanooga), every cabin and hut, and have rarely seen a native with any lung trouble whatever."

The top of Lookout Mountain is accessible by rail in forty minutes from the city, by various lines. The top of Walden's Ridge can be reached in ninety minutes, the top of Missionary Ridge in thirty minutes and all these elevations are delightful resorts in summer, delightfully bracing and exhilarating through the nights of July and August and beneficial the year round to invalids.

The valleys about Chattanooga and the mountains are splendidly watered. The springs furnish every variety of chalybeate and freestone water. The following is an analysis of one of the popular sulphur springs lying within thirty minutes' drive of the city and other springs of equal value are found throughout the neighborhood. One gallon contains:

Sodium Carbonate	2.791	grains
Magnesium	2.142	"
Ferrum	.179	"
Potassium	1.263	"
Calcium	3.060	"
Ferrous Sulphate	.004	"
Sodium Chloride	.048	"
Magnesium Chloride	4.632	"
" Iodide	.005	"
" Bromide	.003	"
Potassium Sulphate	4.062	"
Magnesium "	.504	"
Sodium "	2.086	"
Magnesium Phosphate	.060	"
Calcium "	.223	"
Arsenious Acid	.007	"
Silica and Alumina	3.242	"
Organic Matter	.427	"
Loss by Weight	.396	"
Total	25.134	

The late Dr. J. E. Reeves, former president of the American Public Health Association, who resided at Chattanooga during the last ten years of his life, wrote as follows, in a signed article dated Sept. 18, 1895: "Probably there are but few American cities that can boast of a better water supply, both as to quantity and quality, than is afforded the people of Chattanooga from the Tennessee river. * * * Strikingly in contrast with experiences of other cities north, east, west and south, is the infrequency in Chattanooga of scarlet fever, diptheria and typhoid fever. * * * "

The death rate has shown a marked decline within the past twelve years, demonstrating the result of wise sanitary laws and judicious sanitary drainage. The death rate at Chattanooga would be very much smaller if it were not for the large colored population, whose manner of living causes a large mortality, through their disregard of the ordinary laws of health. The death rate for whites in 1896 was 9.25 per thousand per annum, and is probably as small as any urban population in this country. The mortality statistics for both colored and white, are as follows:

Year.	Population.			Number of deaths.			Rate per 1,000.		
	White	Colored	Total	White	Colored	Total	White	Colored	Total
1885	16,200	8 100	24,300	248	280	528	15 31	34.57	21.75
1886	17,000	8 500	25,500	312	358	670	18.31	42.12	26 27
1887	17,800	8,900	26,700	354	438	792	19 88	49.21	29.66
1888	18,600	9 300	27,900	325	352	677	17.42	37.85	24.26
1889	19 400	9,700	29 100	238	313	551	12.26	32.26	18.93
1890	19,400	9 700	29,100	304	370	674	15.67	38.14	23 16
1891	19,600	9 800	29 400	289	401	690	14.74	40 91	23 43
1892	19,800	9,900	29,700	220	341	561	11 11	34.44	18 88
1893	20,200	10 200	30,400	220	316	536	10.39	30 98	17.63
1894	20 600	10 500	31 100	195	263	458	9 46	25.04	14.72
1895	21 000	10,700	31,700	198	237	435	9 43	22.15	13 72
1896	21,500	11 000	32,500	199	208	407	9 25	18.91	12.52

A Monument erected in the National Military Park.

SCHOOLS OF THE CITY AND COUNTY.

CHATTANOOGA and Hamilton County have much to pride themselves on in their public school system as well as in their colleges and seminaries. The Chattanooga public schools are thoroughly organized and intelligently conducted in accordance with the methods declared to be the best by the wise educators of the day. The Chattanooga system of public schools has received flattering reference by educators from schools even outside of Tennessee.

But few cities enroll in their public schools such a large per centage of the scholastic census; 70 per cent. of the children of Chattanooga between the ages of six and twenty-one years were enrolled in the public schools last year. Few cities provide such ample accommodations for the school children; the average number of pupils admitted to one room is forty, yet no child is excluded on account of inadequate seating capacity. There are now in the city five school buildings, representing an investment of nearly $175,000. In the construction of school buildings the city has made liberal appropriations. Two buildings known as the Second and Third District schools were completed a few years ago at a cost of nearly $100,000. Two others, known as the East Eighth and Montgomery avenue schools, built solely for colored children, are expensive and modern buildings. The First District school is also a substantial building. All the school buildings are brick structures, with modern improvements, and testify to the high estimate placed upon the public schools by the citizens of the city. The city now owns some valuable school property in the eastern limits, where a grammar school is to be built; the municipal authorities are at present negotiating for the purchase of a high school lot, where a very handsome high school building to cost about $50,000 will be erected.

The following is the enrollment at the public schools:

White (male)	1,318	
White (female)	1,371	
Total, white		—2,689
Colored (male)	822	
Colored (female)	993	
Total, colored		—1,815
Grand total		4,504

The appropriation during the year 1896–7 for public schools was in round numbers $40,000, of which $37,981 went to salaries. The scholastic population of the city for 1896–7 is as follows:

White (male)	2,076	
White (female)	2,156	
Total, white		—4,232
Colored, (male)	1,828	
Colored (female)	2,074	
Total, colored		—3,902
Grand total		8,134

Eighty-three teachers were employed, fifty-three white and thirty colored. There were forty-nine graduates in 1896, and sixty full graduates in 1897; the system is a graded school system, with eight grammar schools and four years course in the high school.

COUNTY SCHOOLS—The free schools in the county are greatly above the average in the country districts in the Southern states. Hamilton county was the first to introduce the system of graduation in the district public schools, which finally became a state law. There is a complete course of study in all the schools of the county, with a uniform system of text books. Over 79 per cent. of the teachers in the country schools remain more than one year. All the schools are equipped with patent seats. The average term is over six months and the average salary paid teachers is over $40.

Schools of the City and County.

The total scholastic population outside of the city is 10,596, of which 8,225 are white, 4,255 male and 3,970 female; 2,371 colored, 1,166 male and 1,205 female. The total white enrollment and attendance was 5,200; colored, 1,505. The daily white attendance was 2,837; colored, 839. This year forty-five pupils graduated from the eighth grade. There are fifty-six white schools, twenty-three colored; ninety white teachers, thirty-two colored; sixty-nine school houses. The valuation of free school property outside of the city is $75,000. The total amount expended during the year ending July 1st, 1896, was $88,294.

Chattanooga Medical College.—The Chattanooga Medical College is one of the leading institutions of the city, having just closed its eighth year. Its faculty comprises all the most prominent members of the local medical fraternity. Last year the school secured possession of the large buildings of the Grant university, which are the handsomest and most commodious of any occupied for medical teaching in the South, and compare favorably with other medical colleges anywhere in the United States. Its average annual enrollment shows a total of about 125 names, from numerous states. In the session of 1896–7 it matriculated one hundred and thirty-one students, with a graduating class of thirty-four, and it is thought that the next term will show a considerable increase in matriculants and also an extension of the buildings. The regular teaching corps consists of twenty-nine instructors, covering every customary branch taught in medical colleges.

Chattanooga Normal University.—The Chattanooga Normal University was organized in the fall of 1896. A very handsome college building, costing nearly $20,000, was erected on a commanding site opposite the city, with large and extensive grounds and commodious dormitories and out-buildings. The school at this time has been open four months, and already has one hundred and thirty pupils enrolled and is rapidly increasing the enrollment. It is thought that the next term will show an enrollment of 250, and the end of the first year, perhaps 500. The school is making very rapid progress, and is one of the most complete normal universities in the Southern states. There are numerous attendants already from outside states and the character and popularity of the school are becoming generally recognized.

Other Schools and Seminaries.—The Methodist Episcopal church owns very valuable school property in the heart of the city and has expended nearly $150,000 in establishing the Grant University. It is expected that considerable additions will be made to this university and the theological department will be very largely extended. The buildings and grounds are extensive and valuable.

Among the seminaries in the city are the following:

Baylor's University school, a preparatory school for boys for the university course, with a large attendance from outside states.

The Chattanooga College, a high class girls' seminary.

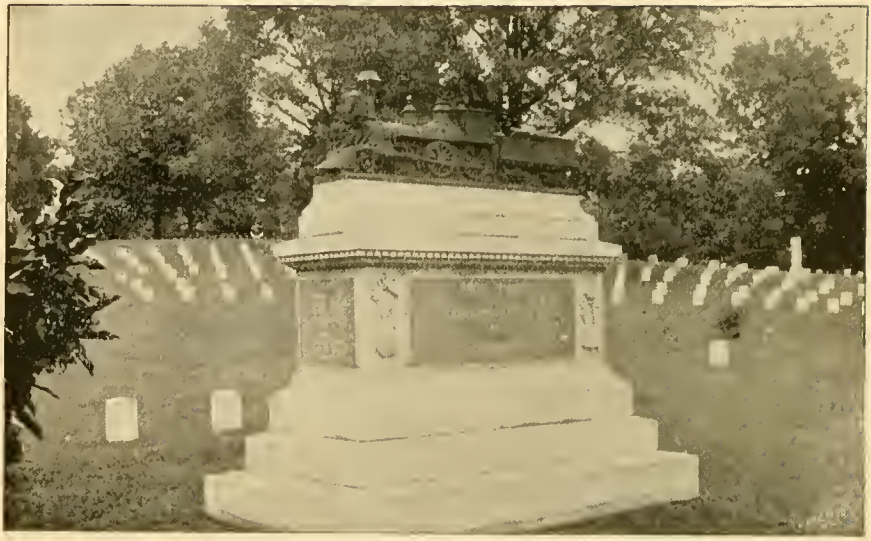
Prof. Hickman's private seminary.

The Lutheran private seminary.

The Chattanooga seminary, besides two public kindergartens, the private kindergartens, two extensive commercial and business colleges and several night schools.

Also the Catholic academy and parochial school combined, in the charge of the Sisters of St. Dominic, which annually enrolls several hundred pupils of the Catholic faith and other denominations.

Hamilton County Court House and Fountain Square, Chattanooga, Tenn.



Andrews Raiders Monument, National Cemetery, Chattanooga, Tenn.

THE CHURCHES.

A HEALTHY moral tone pervades this community, as is evidenced by the large number of church organizations and the magnificence of the church edifices. The aggregate number of church organizations in the city is about one hundred and the relative strength of the different denominations, white and colored represented, is as follows:

Churches.	*Property valuation.*	*Seating capacity.*	*Membership.*
Presbyterian	$100,000	2,500	1,200
Methodist Episcopal	95,000	2,300	1,100
Baptists	75,000	2,600	1,200
Methodist Episcopal, South	60,000	2,500	1,500
Jewish Congregation	10,000	350	75
Christian	30,000	600	350
Unitarian	20,000	250	40
Congregational		300	50
Roman Catholic	200,000	1,500	1,200
Cumberland Presbyterian	40,000	800	400
Protestant Episcopal	75,000	1,500	1,000

In addition to the churches, the city maintains a flourishing Young Men's Christian Association, with a large membership and several missions in aggressive work in the down-town districts.

Chattanooga probably has the largest church-going population in proportion to the whole population of any other city on this continent.

COUNTY GOVERNMENT.

THE government of the county is administered through the county court, composed of forty-three justices of the peace, the county judge as chairman of the court and executive officer, and the county court clerk. The county court holds four sessions annually, the county judge presiding. The quarterly court transacts the general business of the county, delegating to a poor-house commission, composed of three members, elected by the court, the care of the poor and infirm; to the workhouse commission, composed of four members, elected by the court, the county judge as chairman, the care, management and control of the roads, bridges and county prisons. The orphans, both white and colored, are provided for by the county in orphans' homes for white and colored children, the maximum age for admission being ten years. The county also makes liberal appropriations for the care of the inmates, of the Mission Home and to the Associated Charities for the poor and temporarily distressed. The county hospital is under the supervision of poor commissioners.

The total assessed valuation of all property in Hamilton county for the years 1895, 1896 and 1897 is, in round numbers, twenty million dollars, on a basis of about 40 per cent., making the actual valuation fifty million dollars. The tax rate in the years named was as follows: 1895, 95 cents on the hundred dollars; 1896, $1.20 on the hundred dollars; 1897, 95 cents on the hundred dollars.

The expenses of the county for the years named were as follows:

	1894.	1895.	1896.
Work House	$ 49,024.50	$ 27,648.32	$23,043.54
Poor House	13,235.44	9,794.81	9,254.42
Interest on bonds	10,000.00	10,000.00	16,875.00
Schools (including city's prop'n)	70,000.00	70,670.98	66,972.67
Roads	8,000.00	8,156.87	6,473.41
Other expenses	102,858.58	103,467.64	94,479 06
Total	$253,118.52	$229,738.63	$217,098.10

THE CITY GOVERNMENT.

THE municipality of Chattanooga is administered by the Board of Mayor and Aldermen, consisting of the Mayor and sixteen Aldermen, two from each ward; the Board of Public Works, a body of three (appointed by the Governor), which has control of the streets; the Board of Police Commissioners, also a body of three (appointed by the Governor), which has control of the police department. All other legislative and executive functions are within the control of the Board of Mayor and Aldermen. The Mayor is the president of the Board of Aldermen, appoints the standing committees and has general supervision of the city affairs.

The city of Chattanooga is at present very economically governed. Basing the population within the restricted corporate limits at 32,500, the net cost of conducting the city, less interest, during the current year will be $5.45 per capita; and including the annual interest charge on bonds the cost is about $8 per capita per annum. The average expense of American cities per capita, including interest charges, is in excess of $15. The following table shows the aggregate city expenses in the past six years, including the annual interest charges of $51,873.10.

1890–91	$354,237.55
1891–92	334,953.23
1892–93	322,435.11
1893–94	275,595.48
1894–95	282,102.84
1895-96 (less school house erected and paid for in insurance money)	256,179.34

The following table shows the actual expense of each department in the past year, and from this an idea is conveyed of the general management and expense of the city government:

	Actual 1895 96 Expenses.
Schools	$39,443.20
Health and Hospitals	1,024.07
General miscellany	4,520.35
School buildings	1,332.65
Board of Public Works	38,118.09
Public buildings	4,449.20
Police and Prisons	29,178.83
Fire department	27,881.40
Claims	7,638.00
Lights	17,965.00
Water	8,100.00
Salaries	10,494.31
Judgments and cost	4,324.42
Interest	51,873.10
Refunded licenses	415.15
Rents	1,133.33

The financial condition of the city at present is very healthy. The city has no floating debt and it has a sufficient cash balance in the treasury to meet all obligations during the current fiscal year and has no bills payable. The valuation on all property aggregates $12,500,000, on a basis of about 50 per cent., the actual value of real estate and personalty within the corporate limits being $25,000,000. The net bonded indebtedness of the city, less the sinking fund, is $860,000, all of which, except $100,000, are street and sewer bonds.

Tax levy of the city in the past eight years has been as follows:

Tax levy, 1889	$1.80 on $100
Tax levy, 1890	1.75 on 100
Tax levy, 1891	1.80 on 100
Tax levy, 1892	1.60 on 100
Tax levy, 1893	1.30 on 100
Tax levy, 1894	1.30 on 100
Tax levy, 1895	1.25 on 100
Tax levy, 1896	1.65 on 100

The increased levy in 1896 was in consequence of the lower per centage basis of valuation, but yielded the same revenue as the levy of 1895. The tax levy for 1897 on the 50 per cent. valuation will be about $1.45 on the $100.

PAVING AND SEWERS.

DURING the last nine years extensive improvements on the business and principal residence streets of the city have been accomplished, and few cities of its population can now show greater results in this direction. The mileage of improved streets within the city on April 1st, 1897, is as follows :

Sheet Asphalt Pavement	2.45	Miles.
Block Asphalt Pavement	1.03	"
Granite Block Pavement	2.08	"
Vitrified Brick Pavement	3.98	"
McAdam and Telford	3.46	"
Gravel Roadway	3.90	"
Total length of improved streets	16.90	Miles.

The total cost of these street improvements has been approximately $600,000.

The materials used in the paving of the city's business streets are sheet asphalt, vitrified brick and granite blocks, and on its residence streets, including those thoroughfares which, by means of the main county roads, connect the center of the city with the important suburbs, the first two mentioned materials, together with asphalt blocks, McAdam and gravel, have been used. These pavements and the McAdam and gravel roadways have all been constructed according to modern scientific methods. The grades on which sheet asphalt have been laid do not, in any instance, exceed three (3) per cent., although some of the brick pavements have been laid on grades of eight (8) per cent.

In the drainage of the site occupied by the city, nature has done much to facilitate the work of the engineer. The Tennessee river, which forms both its northern and western boundaries, receives the sewage of the city, which is the method of disposal adopted by all of those cities in this country which are fortunate enough to be located on the larger rivers. The elevation above low water mark of the business portions of the city ranges from fifty to seventy feet, while the main residence portions will average more than one hundred feet, the summit of the highest hill within its limits being about three hundred and fifty feet above the zero of the river gauge of the United States Weather Bureau, which zero is in the datum or horizontal plane from which the elevations of the street and sewer grades are reckoned. The sewerage system of the city is constructed on the combined plan, that is, it is designed for the removal of both storm water and sewage. There is within the city, which contains an area of about four square miles, seven drainage districts, each of which has been provided with brick main sewers of egg-shape form, and ranging in size from twenty inches by thirty inches to fifty inches by seventy-five inches. The lateral or tributary sewers have been constructed of both brick and vitrified clay pipe. Other drainage districts remain to be laid off and provided with sewers, as building improvements are extended to the outskirts, but the work yet to be carried out, in order to complete the sewerage of the city, is small when compared with what has already been accomplished in this direction. Therefore further outlay in the future for the extension of the system, will necessarily be limited. The total mileage of sewers now in operation is as follows:

Brick Sewers	9.00	Miles.
Pipe Sewers	26.02	Miles.
Total	35.02	Miles.

The approximate cost of the sewerage system of the city has been $300,000.

A VIEW OF CHATTANOOGA.
This view is taken from the dome of The Times building, down West Eighth Street. The mountains in the background are known as Raccoon mountain. The building on an elevation to the left is a public school building.

REAL ESTATE VALUES AND RENTS.

THE corporation limits of Chattanooga have not been extended since the city was originally laid out, nearly fifty years ago, and are approximately two miles wide and two and one-half miles long. The city is bounded on the north and west by the Tennessee river, thereby preventing extension in those directions. The lands adjacent to the corporate limits are lower, hence desirable property, suitable for residences in and about the city limits is restricted. The fact that the limits of the city are within the same confines that they were when it was originally incorporated, has caused a large population to locate in the suburbs, which lie close to the city and contain today a population almost equal to that within the corporation itself. Hence property that in Chattanooga is rated as suburban, would be classed as city property in other cities of its size.

The population of Chattanooga and suburbs resides within a radius of two and one-half miles of the court house, a territory embracing about fifteen square miles, which is considerably less than the territory embraced in the limits of most cities of the same rating as Chattanooga.

Good lots on the best residence streets, within the city limits, can be had at from $20.00 to $100.00 per front foot, within a maximum distance of one mile of the business heart of the city. Lots on other streets that are less desirable can be had for much lower prices, and in the southern portion of the city, where the factories and railroads are located, good lots can be purchased at from $6.00 to $30.00 per front foot, within one mile of the business center. Good suburban lots in the chief suburbs, within two and one-half miles of the business center of the city, and within three miles of the western limits of the city, can be had at from $3.00 to $14.00 per front foot, all convenient to an electric car line, supplied with city water, etc.

Good business property in this city is worth from $25.00 to $600.00 per front foot, depending on the street and location, the extreme price prevailing within a very restricted business quarter, covering an average of both sides of the street of less than two thousand five hundred feet.

RENTS.—Dwellings of seven and eight rooms, on fifty-foot lots on best streets bring from $20.00 to $35.00 per month; other streets in desirable portions of the city, from $15.00 to $20.00, and smaller houses in proportion. In the southern portion of the city near manufacturing plants, four or five room houses are rented at from $5.00 to $10.00 per month, and larger houses in proportion.

In the best suburbs, convenient to street railway, with water supply, five room cottages rent from $5.00 to $7.00 per month, seven to ten room houses, from $8.00 to $12.00 per month, water included.

STORE RENTS.—Store rooms in brick buildings rent from $5.00 to $150.00 per month, owing altogether to location. The maximum figure is paid in only one or two buildings in the very best block in the city; other store rooms in the same block rent for $100.00 and less per month. Store rooms in the five central blocks on the chief business street, rent from $25.00 to $75.00 per month; on the lateral streets, from $25.00 to $50.00 per month.

Farm lands within ten miles of Chattanooga are held at prices ranging from $5.00 to $50.00 per acre, owing to location, character of soil, improvements, and other advantageous conditions.

Values of real estate and rentals are lower in Chattanooga by a considerable percentage than in other cities of the United States, of the same size, and with less promising prospects, but the most conservative judges are of the opinion that a steady advance in prices will immediately take place. There are fewer vacant residences in the city than at any time in its history.

CHATTANOOGA'S PUBLIC INSTITUTIONS.

The Auditorium, East Ninth Street.

CHATTANOOGA has three commercial bodies. The Chamber of Commerce is the oldest and is one of the first regular commercial organizations formed in the Southern states; its membership exceeds two hundred and is aggressive and active. The Young Men's Business League was organized in 1895; it has a membership of over two hundred and is very active in promoting the industrial and commercial interests of the city. The South Chattanooga Business League was organized in 1896; it has a membership of sixty-five and is devoting itself chiefly to the interests of that section and is succeeding well.

The wholesale grocers, the retail grocers and commercial travelers all have separate organizations, which are also successful. The Library Association of Chattanooga has comfortable quarters in the Southern Express building; its membership exceeds three hundred and it has about five thousand volumes, besides reference and reading tables. The Chamber of Commerce has a reference library of about one thousand volumes. The Chattanooga Female College has a library of fifteen hundred volumes. The Young Men's Christian Association has a library of eight hundred volumes. The Hamilton County Teachers' library contains about four hundred volumes.

There are various benevolent and charitable institutions in the city. The Orphans' Home has comfortable quarters and cares for about fifty children. The King's Daughters have a Children's Refuge; the Mission Home has a refuge for fallen women; a home is being erected for working girls; the Steele (colored) Orphans' Home is a large structure with accommodations for about two hundred and fifty orphans. The city and county have erected a very large hospital building, with the co-operation of the railroads and a liberal contribution from the Baroness Erlanger; it will be opened during the summer of 1897.

CHATTANOOGA AS A CONVENTION CITY.

FEW cities in the world possess equal attractions to Chattanooga for conventions. The many interesting points in and about the city are set forth in detail in the various chapters elsewhere. The attractions that Chattanooga possesses as a convention city, in brief, are:

First.—Its unrivaled transportation facilities.

Second.—The salubrity of the climate and its predominance of sunshiny weather, as are evidenced from the weather statistics given elsewhere.

Third.—The matchless scenery which surrounds the city, equaled by few on this continent and surpassed by none.

Fourth.—The historic associations of the city and its environment.

Fifth.—The location here of an immense auditorium building, erected by the city solely for the free use of conventions, which building is a commodious structure with modern appointments; it will accommodate comfortably five thousand persons.

Sixth.—Ample hotel accommodations, which are adequate to any occasion.

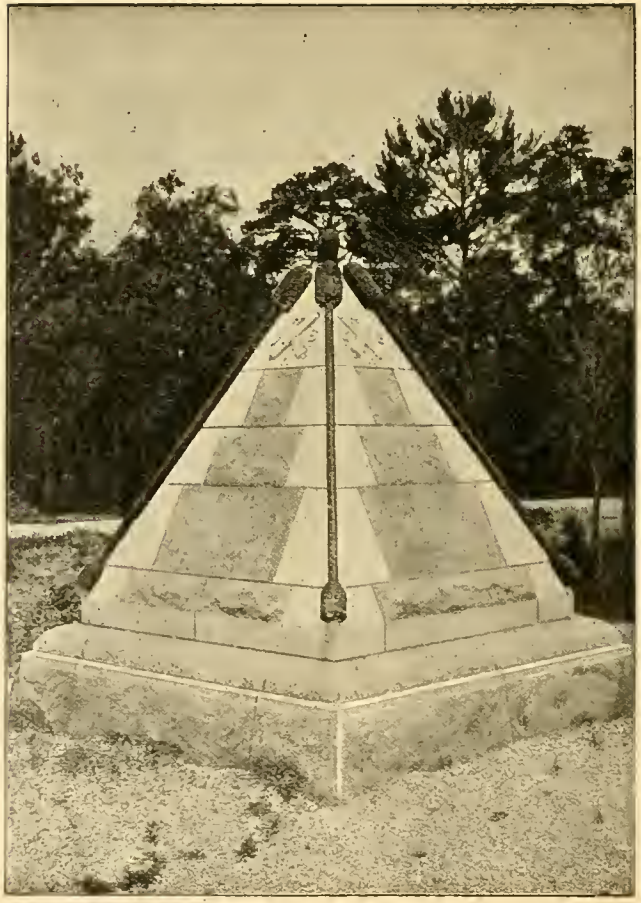
Within the past three years Chattanooga has entertained three large assemblies. The largest was the vast multitude of people who came here to witness the dedication of the Chickamauga National Military Park. It is estimated that there were about 50,000 visitors during the week of dedication, as many as 30,000 in one day, and they came from all parts of the United States. The city was equal to the occasion. Every visitor was accommodated and there was no complaint of lack of supplies or want of satisfactory lodgings.

The next large assembly was the meeting of the International Conference of the Epworth League in this city, in 1895; there were approximately 10,000 visitors and Chattanooga won again a national reputation for surpassing hospitality and excellent accommodations.

The next large meeting was the convention of the Southern Baptist Association, held in 1896, and so enthusiastic were the members over their entertainment and comfortable accommodations that the Baptist Young People's Union selected Chattanooga as their meeting place in 1898, and on the failure of Brooklyn, N. Y., to procure satisfactory rates for the 1897 convention they substituted Chattanooga for Brooklyn for 1897, and will meet here on the 18th of July 1897, when it is expected that 12,000 visitors will be entertained.

The brilliant success that this city has achieved on these notable occasions has given it fame as a convention city in all parts of America. The hospitable sentiments of the community being so strong, and fully realizing the unusual attractions of this city for conventions, the city council began the erection of the beautiful auditorium mentioned above, which will be completed by the first of June, this year, the total investment, including the value of the land, being about $50,000.

This convention hall will be in charge of auditorium commissioners, who are prohibited from making any charges for the use of the auditorium for conventions that meet at Chattanooga. It is beautifully fitted up with handsome opera chairs, is a fireproof structure and so constructed that the maximum distance of the speaker from the furthermost auditor in the building is about seventy-five feet. The floor and the balconies rise in a general ascent so that every person in the house has an excellent view of the platform. The platform ascends into a concave amphitheater, being arranged for large musical festivals, and can easily accommodate five hundred singers.



Monuments erected in the National Military Park, near Chattanooga.

Centenary M. E. Church, South. Custom House. First M. E. Church.

PRODUCTS OF THE COUNTY.

HAMILTON county contains an area of about five hundred square miles and is almost bisected by the Tennessee river; it is well watered by innumerable creeks that flow toward the river at every point in the county. The difference in altitude between the table lands of Walden's Ridge and the alluvial river bottoms is about one thousand five hundred feet, this equals four degrees of latitude, giving to the elevated ground the climate of Southern Ohio, along the hillsides that of Kentucky. Hence the county has a range of climate found in three states.

The soil formations are of very great variety, beginning at the river bottoms, changing into the various alluvial formations, the chocolate and red clay soils, and these again joined and mixed with another variety of flinty gravel or magnesium limestone soil. The soil holds moisture to a surprising degree and is uniformly valuable for tillage, though varying materially in appearance and character. As a whole it may be classed as undulating land, hilly land, mountain land and bottom. Much of it is well timbered, but may be easily and profitably cleared.

The ridges and hills about Chattanooga are peculiarly well adapted to the growth of strawberries and other small fruits, as well as vegetables. The berries that are grown on these ridges have a superior color, a richness and firmness, making them very desirable for shipping to the Northern markets, where they have a reputation above fruit from any other section of the South. Another favorable feature of these gravelly ridges is their tendency to hold and take up moisture, so the berries do not suffer for the want of rain during the picking season, as is the case usually in the clay or loam soil.

The mountain lands are well adapted to the growth of apples, pears and also potatoes, especially for winter use. Pears, plums, cherries, apricots and quinces all grow successfully and bear excellently and are being more and more improved in varieties as they are given more care. There is a seedling of the limbertwig apple near Chattanooga, which has produced eleven annual crops without a break, ranging from eight to fifteen bushels each year. It is an early winter apple, being good in September and lasting until January. This chance seedling is mentioned, demonstrating the results that would follow the planting of seeds of the best apples. There are several very successful peach orchards which have had three or four crops in succession. Peaches of fine size and quality can be grown as regularly as root crops.

The most important of the fruit crop is the strawberry. In the immediate district about Chattanooga, there are in the year 1897, nearly two thousand five hundred acres bearing, which will yield probably one hundred and twenty-five thousand twenty-four quart crates, the gross sales of which will amount to nearly $250,000. The bulk of this crop is shipped to Northern cities, chiefly to Cincinnati. So successful have the berry shippers been that it is estimated that in 1898 the acreage will be doubled and the methods of cultivation so improved that the yield will be increased per acre at least fifty per cent. Other small fruits, such as raspberries, dewberries, etc., are shipped largely from Chattanooga; the shipments this year will reach sixty thousand crates, valued at over $100,000. Currants and blackberries grow wild and the blackberry shipments are becoming extensive.

It is estimated that sixty carloads of tomatoes, beans, nutmeg melons, cucumbers and other vegetables, are shipped annually, the gross sales of which amount to $50,000, and the industry is now in its infancy. The sweet potato crop has been a certainty for the past six or eight years and is regarded as a very safe product. They are being very profitably raised in the immediate

vicinity of Chattanooga. Great success has been had in the culture of the cabbage, beat, onion, radish, lettuce, cauliflower, egg-plant and many other like products, and some very interesting and successful experiments are now being made in the culture of celery; the soil has been found excellently well adapted to this esculent, possessing many of the qualities to be found in the Kalamazoo district; it is thought that its cultivation will become a very important industry. Peas of all kinds have a prolific growth throughout the county; some varieties are plowed under as a fertilizer and prove very valuable.

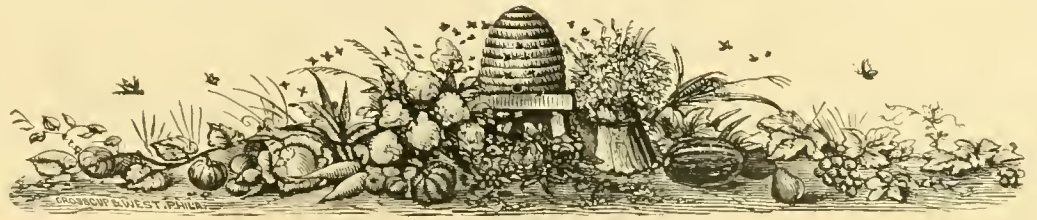
Grapes in former years were produced in large quantities, and shipments to amount to over $200,000 were made in one year. These were raised on the ridges lying immediately adjacent to the city, which became so valuable through the rapid growth of the city that the vineyards were dismantled and turned into town lots. The industry has not since been developed to any extent, but the indications are that considerable attention will soon again be paid to the cultivation of grapes and that they will become an important article of shipment.

The clover, timothy and herd grass are produced on the river bottoms very successfully and a considerable amount is marketed. Millet, red top, timothy and clover are successfully raised in the county. Sugar cane, sowed thickly, yields largely and three crops may be cut from one season's sowing, making an excellent feed. Another excellent feed article known as keifer corn, grows very successfully; it has a slender stalk and leaf, but resembles corn, with top seeds and is exceptionally fine for poultry.

Stock raising is becoming more general than formerly in the county, though no special efforts have yet been made to fully develop what could be made a most profitable industry. Mules, horses and cattle average well. Good results are being had in sheep raising, especially on the high and hilly land Hogs can subsist the year round foraging in the woods; not much care has been taken in selecting good breeds, but when good attention is given to the business it has proven very satisfactory. The county is well adapted to poultry raising and the business has been very successfully prosecuted, though not to a considerable extent. Chickens, turkeys, guineas, peafowls, geese and ducks thrive, are free from disease, yielding a large egg product. They have a long season of pasture, with market so extensive that prices keep uniform and profitable.

No hail or wind storms ever devastate the section, because of the mountain protection. It is remarkably free from pests and insects that afflict animal, fowl, plant or tree. Droughts are unknown and gentle rains are frequent in summer.

Farming operations are reaching a better basis by the influx of a class of farmers who have studied modern, scientific methods. There is still much to be accomplished in this respect, with intelligence and industry farming in any of the branches enumerated can be made exceedingly profitable.



ROADS AND BRIDGES OF HAMILTON COUNTY.

THE Topographical Map of County and Vicinity, issued by the Department of the Geological Survey, which map includes within its borders Hamilton county, shows that the part of Hamilton county lying north of the Tennessee river, is divided by a natural topographical division into two nearly equal parts. This dividing line does not trend exactly north and south, but about twenty degrees east of north and is the eastern escarpment of Walden's Ridge, that magnificent table land of the East Cumberland, which rises grandly between the valleys of the Sequatchie and the Tennessee That part of Hamilton county lying south of the Tennessee, having the same general characteristics as the north, is especially distinguished by Lookout Mountain, standing like a mighty sentinel over the fertile Lookout Valley on its left and Chattanooga Valley on its right.

To the east, across the broad and open Chattanooga Valley, cradling its busy city of fifty thousand people, we have the historic Missionary Ridge. To the east of Missionary Ridge we have the undulating plain of the South Chickamauga. Thus we not only have on the north side of the Tennessee the Cumberland Tableland, with its peculiar adaptabiiity to the raising of orchard fruits, but the alluvial river bottoms as well, stretching along thirty miles of river front and yielding its immense harvests of corn, oats and wheat.

On the south side of the river we have all the varieties of soil, from the rich limestone wheat producing soil of the Lookout Valley, to the mulatto soil of the chert formation (which is pronounced the best anywhere for the production of strawberries and small fruits), to the red lands east of Missionary Ridge, which for general farming purposes cannot be excelled.

Hamilton county, Tennessee, being thus endowed with this generous variety of arable soils, capable of supporting the great city which Chattanooga, by reason of her geographical situation, is destined to become, the question of accessibility—of roads making accessible this territory for the diversified interests of a people, and enabling capital and enterprise to develop the natural wealth lying within our borders, becomes one of paramount importance.

The question of better roads for Hamilton county was first effectively agitated in 1876, at which time the present system of macadamized roadways, which now radiate from the county seat, was begun. Today one hundred and fifty miles of macadamized and graveled thoroughfares stand as a monument to the enterprise of the citizens of Hamilton county, costing in the neighborhood of $375,000. The Rossville Pike, the first essay in permanent road building attempted by the county, extends south from Chattanooga to Rossville, just beyond the Georgia state line. This road, connecting with the principal thoroughfare to the Chickamauga and Chattanooga National Park at Rossville, Georgia, is a favorite with cyclists, the destination being the above mentioned park, where the National Government has already spent a million of dollars laying the foundation of what is already the greatest military park on the continent.

To the east, two broad thoroughfares, Montgomery and McCallie avenues, connect the city with Government Boulevard, eight miles in length, on the crest of Missionary Ridge, and continue on by easy grades to the southeastern and eastern limits of the county respectively, about ten miles distant.

Thirteen miles northeast is situated the town of Harrison, noted as having been the county seat from 1840 to 1870. The Harrison Pike was one of the earliest of permanent roadways, and renders accessible an immense section of fine farming lands, skirting the east side of the Tennessee river. To the north, crossing

the Tennessee river, is Washington road, which has been completed to the town of Sale Creek, a distance of twenty-eight miles. This thoroughfare, connecting the thrifty towns of Daisy, Soddy, Retro and Sale Creek, represents, including the subsidiary roads built in connection with it, an expenditure of about $42,000. Leaving this road to the east soon after crossing the river, we have the Dallas road, which has been completed to a point two miles east of Hixson, and will ultimately connect with Dallas, if not indeed with Soddy, which is entirely within the possibilities. To the left we have the Anderson Pike, leaving the Washington road at Mountain Creek. The Anderson Pike ascends Walden's Ridge by easy grades, amid scenery of ever increasing grandeur until, surmounting the cliffs at the summit, one beholds the broad Tennessee Valley below him with its tracery of stream and road and checker work of cultivated fields. Should the beholder possess a practical mind he cannot help remarking the wisdom and liberality of a policy which has thus rendered accessible the many acres of mountain land to the seeker of healthful homes as well as to the far seeing investor of capital.

Still further north another road leaving the Washington road at Daisy is now in course of construction. This new road ascends by the side of the ridge at a grade of seven feet in one hundred, taking the place of the old road at this place, which ascends by the most prohibitory grades of eighteen to twenty-seven feet per hundred, and hence constitutes an object lesson, illustrating the old and new systems of road construction. To the west and southwest of the county seat we have a network of roadways that are the admiration of the visitor to our picturesque environment

Lookout Mountain offers its graveled boulevard, rivaling the famous shell roads of Mobile and New Orleans, to the tourist who would explore the wonders of Rock City, or visit the sylvan shades of Lulu Lake.

Missionary Ridge with its magnificent boulevard, built by the United States government, traverses the crest of the ridge from Rossville Gap on the south (where it connects with the LaFayette road, also built by the government) to Sherman Heights on the north. The views from along this boulevard, taking in as it does both sides of Missionary Ridge, cannot be excelled for historical interest of national importance. The government has erected numerous iron historical tablets describing the battle of Missionary Ridge. These tablets locate the troops and describe their movements. Monuments of cannon, statuary of marble and bronze are met at intervals and tend to make a drive along this boulevard one of absorbing interest. Two observation towers, seventy feet in height, occupy commanding situations, and permit a study of the fields of the great struggle of November, 1863.

The building of roads necessitates the construction of bridges.

Wherever, in this system of modern roads, bridges are necessary structures of steel and iron of generous proportions have been built across all creek and larger waterways.

The magnificent free bridge that spans the Tennessee river, opposite Walnut street, stands as a monument to the enterprise of a progressive people. This bridge, giving uninterupted traffic between the north and south ends of the county, was designed to accomodate foot passengers, wagon traffic and electric cars, and was built in 1888–9. The bridge, 2,370 lineal feet in length, made up of three spans of 320 feet each, three spans of 210 feet each, and 720 feet of iron viaduct, is a high level bridge 100 feet in the clear above low water; is without draw span, and is reached by easy gradients. The bridge is designed to sustain a load of 2,400 pounds per lineal foot of bridge with a factor of safety of six, and was built at a total cost of $233,560.66, divided as follows:

The superstructure	$122,361.16
The substructure	96,199.50
Engineering and superintendance	15,000.00

Many other bridges might be mentioned for the purpose of illustrating the policy of the county along the line of permanent construction, but enough has been shown to emphasize the fact that in the movement for "better roads" Hamilton county offers her road system as a example of what can be done by a systematic and intelligent effort along this line.

The use of county prisoners for the purpose of constructing public highways was recognized at an early date in the history of the development of the resources of Hamilton county, and the county workhouse system as applied to road construction has here become one of the recognized institutions of the county, and while not by any means perfect as yet, gives promise of even better results in the future for the construction of permanent highways.

A view of Chattanooga from Cameron Hill.

LOOKOUT MOUNTAIN.

LOOKOUT MOUNTAIN stands 2000 feet above Chattanooga, almost overhanging its corporate limits, with its foot hills forming the city's nearest suburb. Its summit is reached within thirty minutes from the business center of the city, by two incline railways; a standard guage railroad also threads its way to the mountain top, connecting with all passenger depots in the city, by which means the trip to the mountain can be made in forty-five minutes.

The mountain has been greatly improved and is today one of the most desirable resorts for the enfeebled, the over-worked or the pleasure seeker, upon this continent. Lookout Inn is perhaps the most magnificent hotel upon a mountain in this country; it was erected at a cost of $250,000, contains nearly 500 guest chambers; it is elaborately and richly furnished throughout; equipped with all modern conveniences, heated by steam, lighted by electricity and gas, supplied with running water and is furnished with every comfort and attraction that modern ingenuity and generous hospitality can devise.

Broad, well built boulevards traverse the mountain plateau for miles; the streets are underlaid with water and gas mains; telephone and electric wires are strung to the scores of ornate cottages that line the shaded streets and roadways, and everywhere there are all the comforts and conveniences of city life.

The most beautiful spots upon the brow of the mountain have been preserved for parks; it is quite likely that the U. S. Government will purchase the chief reservation at "The Point" of Lookout Mountain to make it a fitting completion of the magnificent plan of the Chickamauga–Chattanooga National Military Park.

Among the mountains called of battle Lookout deserves the first place in any history of the Southern Appalachians. Before the first Anglo-Saxon saw its wooded talus and gray-green cliffs from the opposite crest of Walden's Ridge, it was the battle ground of the red men. The warlike Cherokees and their kinsmen the Chickamaugas dwelt in the valleys 'round about, and on its slopes their war-parties made good against their tribal enemies their claim to the ownership of the "Far-Look" mountain. The precipitous cliff at its northern extremity was their signal height. The smoke of the alarm fire rising from its summit was the warriors' call to arms.

In the early settlement of Tennessee the cliff-crowned mountain at the toe of the moccasin became the battlefield of the races. Defeated in the great valley of East Tennessee, the Indians retreated to their fastnesses on Lookout; and on the western slope of the mountain within sight of a greater future battlefied, was fought the last decisive conflict with the allied tribes. John Sevier won it and broke the organized strength of the red men, but for many years afterward the pioneers, drifting down the Tennessee from the older settlements on its head waters, to the fertile valleys beyond the Cumberlands, watched furtively for the first glimpse of the sentinel mountain standing grim and silent at the portal of the ninety-mile gauntlet through the gorges. If the sky line was clear, all went well, but if a column of smoke was hanging above the signal height, the hardy adventurers looked to their arms, refilled the priming pans of their rifles, and made bulwarks of the cargo to protect the women and children during the running fight which would begin at the overhanging bluffs of the great mountain.

A peaceful half century followed the dying out of the last Indian signal fire on the Point Rock, and then the distant murmur of a fiercer tide of conflict echoed from the cliffs of Lookout. One lambent autumn day the tide of civil war poured over the passes of the Raccoon to submerge the fields in Will's Valley and

to rise in billows of blue on the slopes of the historic mountain until the marching thousands of Rosecrans' left wing caught their first glimpse of Chattanooga and Missionary Ridge from its wooded summit.

The tide flowed onward and a few days afterward the eastern palisades of Lookout flung back the thunders of Chickamauga to Chattanooga Valley. Then the tide surged backward and when the lines of circumvallation had been drawn about the beleaguered city in the great bend of the river, the bosom of the old mountain was scarred and furrowed with the intrenchments of the besieging army, and from summit and half-way height the batteries hurled their messengers of death down upon the armed hosts in the valley.

The final act in the historic mountain's tragic drama was played on that November day when the mists of the valley thickened into sweating clouds on the wooded slopes, and Lookout hid its face as if to shut out the sight of carnage. All the world knows how "the battle above the clouds" was lost and won, what deeds of heroism and brilliant courage were there enacted, and many a curious pilgrim has since stood upon the time-worn signal cliff to gaze down upon the scene of the mountain's final conflict.

The scars are healed now. The breastworks have become grassy mounds, and the sightseer has to be guided to the redoubts from which the bellowing cannon played upon the city, spread out in the valley below. But after the spring rains have washed away the litter of the year, the children, gathering arbutus and the fragile wind-flowers on the slopes of the ancient mountain, find broken arrow-heads bedded in the mellow earth side by side with battered minie-balls and fragments of shattered shells; relics of the earlier and later struggles whose din has been re-echoed by the gray cliffs of old Lookout.

What pen can portray the matchless beauties that are unfolded from the mountain heights? At every spot upon the brow, a bewildering panorama of landscape stretches forth. There are loftier mountains, more sublime stretches of precipice and beetling cliffs, taller peaks and deeper gorges, but there is no spot on this western world where beauty is so charmingly united to sublimity, or where one's soul is so thrilled without being awed by appalling surroundings; where the limpid lyrics of nature are so interwoven with her epics, where the melting hazes of purpling landscape dissolve into majestic stretches of towering peaks; where nature frowns, and smiles, and woos the enchanted beholder, thrilled by the glories and the majesty of God's handiwork.

"THE CLIFF DWELLERS."
The Bluff on the south bank of the Tennessee river, at head of High street.

The Chickamauga-Chattanooga National Military Park.

CHATTANOOGA is the only great battlefield of the civil war, probably the only one in the world, where the visitor can see from a single point the entire field of extended operations, and where, at the same time, the non-military observer can readily trace and understand all the movements of the contending armies. Not only are the operations of four day's battles clearly seen from the Point of Lookout Mountain, but from this point the strategy of the Chickamauga campaign, by far the most brilliant and imposing of the war, and the essential features of the two days' battle at Chickamauga can each be clearly comprehended. Including the Brown's Ferry and Wauhatchie affairs the eye readily follows all the operations of each side along lines of battle fifteen miles in length.

There is no other among our battlefields which presents such imposing natural obstacles. The rugged and tangled slopes of Missionary Ridge, the precipitious Lookout range rising 1800 feet above the valley and terminating in summits walled with lofty palisades, and the wide and swift Tennessee present such bars to military movements, to say nothing of military success, as cannot be elsewhere found. One of the interesting, as well as very practical, elements of this extended theatre of tremendous military operations is that every prominent point in it can be reached by a short ride at ordinary street car rates. Lookout Mountain, Missionary Ridge, Orchard Knob and Tunnel Hill are each thus accessible. The first overlooks all the rest, and is the immediate scene of Hooker's and Walthall's "Battle Above the Clouds." The second is the theatre of that miracle of military story, the storming of the ridge by General Thomas' central lines. The last is where Sherman's army assaulted, and where Cleburne's forces successfully defended the Confederate right.

Chattanooga is in the center of the great National Military Park which the government is establishing to preserve the history of these battles and minor affairs attending the campaigns for the possession of the city. The purpose is to set forth on tablets and monuments, and on the exact ground of movements, the operations of every regimental organization and battery in these battles. This history when finished will show the details of five days of great battles—two at Chickamauga and three at Chattanooga—and the lesser affairs connected with the preliminary movements at Chickamanga, the Brown's Ferry affair, and the battles of Wauhatchie and Ringgold—in all nine days of active fighting.

When the plan was first proposed the propriety of selecting the fields about Chattanooga for preservation was recognized on all sides, since all the great Union armies the Cumberland, the Tennessee and the Potomac on the one side, and Bragg's, Johnston's and Lee's armies on the other—were engaged, while many of the most eminent officers on each side commanded these forces. The character of the fighting also largely influenced the case, since Chickamauga, when judged by the numbers engaged and the time of fighting, was found to have been the deadliest battle of modern times, while the battles of Lookout Mountain and Missionary Ridge were assuredly the most notable spectacular engagements of the war.

Nothing like this park project had, up to the time of its inception, been undertaken by any nation. It was entirely new in the history of war, in that both sides met in cordial study and marking of the field, and the government which had been successful in the contest undertook to do full credit to the valor of those who had been defeated.

The government has already purchased the entire battlefield of Chickamanga, ten square miles in extent, the battlefield on Lookout Mountain, Orchard Knob, the north end of Missionary

Ridge, Bragg's headquarters on the ridge, and some minor tracts of less importance. The states of Tennessee and Georgia have ceded to the government for park purposes the principal roads by which the opposing armies reached or left the several fields, and these have been improved as approaches to the park. The crest road, running for eight miles along Missionary Ridge, closely follows Bragg's line of battle. The central drive of the park extends from the north end of Missionary Ridge to Crawfish Spring, and is twenty miles in length. Congress has just made an appropriation to extend the construction of the LaFayette road from Lee & Gordon's mill to LaFayette, a distance of thirteen miles. This will give a continuous drive from north to south of thirty miles over a boulevard constructed on a right of way fifty feet in width, and built throughout by the government's best methods.

To this project of large dimensions Congress has thus far appropriated $880,000, and the several states have expended in the aggregate about $400,000.

Twenty-six State Commissioners have co-operated with the National Commission in ascertaining the battle lines and the positions and movements of the troops from their respective states.

About 200 state monuments, besides many markers, have already been erected, and this work of the states is still in active progress. The government has erected monuments to the regular troops, and fully a thousand historical tablets and large shell markers to indicate the spots where general officers on either side were killed. The fighting positions of the artillery on each side are being marked by actual batteries, the guns of which are of the identical patterns used in the battle, mounted upon cast iron gun carriages, which are an exact reproduction of those used during the war. Already 200 guns have been placed in position on the Chickamauga field alone. Four batteries have been set up on Missionary Ridge and two on Orchard Knob.

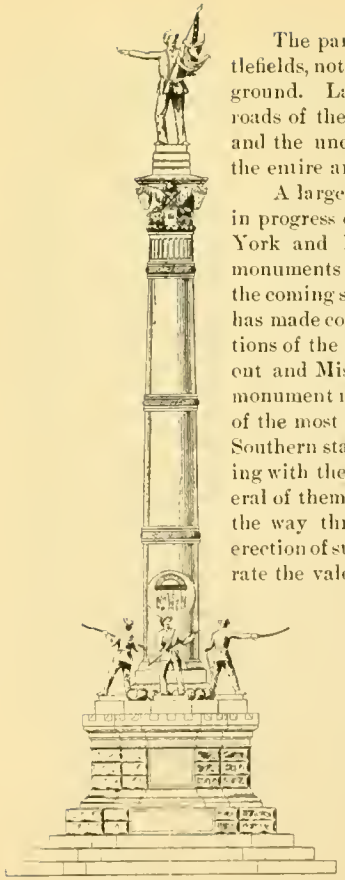
The distinguishing feature of the vast work in progress is its absolute impartiality. The same rules and regulations apply alike to Union and Confederate lines, monuments, markers and tablets. Work on the park began with this equality of treatment of both sides as the central and controlling idea.

The historical tablets are of four classes, namely, those at army headquarters, corps, division and brigade tablets. Those at army headquarters show the corps which composed the armies with their commanders in the battle. The corps tablets show the divisions in each with their commanders; the division tablets show the brigades composing them with those in command, while the brigade tablets carry the organizations to regiments and batteries and those commanding them. There are also battery tablets, several hundred guide tablets, and tablets marking all localities of special interest on the fields.

The western half of the Orchard Knob reservation is reserved for monuments to such organizations as were engaged in the general operations but fought outside of the legal limits of the park.

Each of the historical tablets has, besides the part showing the organization of the command to which it relates, from two hundred to four hundred words of text setting forth the exact history of operations upon the ground occupied by the tablet.

By amendments to the original park act Congress has provided that regimental monuments and general state memorials shall be placed on brigade lines of battle. The purpose of this legislation is to identify the lines of battle at a glance, a thing impossible if individual regiments should be allowed to put their monuments upon any spot which the regiment may have chanced to occupy without regard to the general line. This will prevent the dotting of the field with isolated monuments which could only confuse all visitors, since no one unfamiliar with the field could then trace the lines except from a careful reading of the inscriptions on these separate monuments.



THE GEORGIA MONUMENT.
Monument erected by the State of Georgia in Chickamauga Park.
Shaft, blue granite; figures of bronze and bronze tablet. Height, 81 feet.

The park is simply a restoration of battlefields, not a park in the sense of a pleasure ground. Later roads have been closed, the roads of the battle reopened and improved, and the underbrush has been cut out over the entire area of the park.

A large amount of monument work is in progress on the part of the states. New York and Pennsylvania will erect costly monuments on Lookout Mountain during the coming season. The Illinois Commission has made contracts for marking all the positions of the troops of that state upon Lookout and Missionary Ridge. Georgia has a monument under contract which will be one of the most imposing in the park. All the Southern states have commissions co-operating with the National Commission, and several of them are moving actively to prepare the way through their legislatures for the erection of suitable monuments to commemorate the valor of their troops.

It will be seen from this statement of the general features of the park and the comprehensive plan upon which it is being established, that it is designed to be an object lesson in the art of war and to preserve and commemorate some of the most remarkable examples of American courage and grand endeavor on the field of fierce conflict which the history of our war affords.

THE SUBURBS.

ELSEWHERE mention is made of the restricted limits of the corporation of Chattanooga, no extension having been made since the city was originally laid out. The rapid increase in inhabitants produced a natural expansion of the population and caused a large number of suburban villages to spring up as if by magic; in most urban settlements these would be embraced within the corporate limits.

The most populous suburbs of Chattanooga lie within a radius of 2½ miles of the court house, and consist of the following:

Alton Park, Avondale, East End, East Lake, Highland Park, Hill City, Lookout Mountain, Ridgedale, St. Elmo, Sherman Heights and Suburba.

Of these, Highland Park is the most populous, lying immediately adjacent to the corporate limits and containing a population of 3,500. Next in importance is Hill City, which lies immediately north, across the Tennessee river, and is a beautiful town of 2,500 inhabitants, in every respect being a part of Chattanooga; it is the site of the Chattanooga Normal College. St. Elmo is the third most populous suburb, and lies at the base of Lookout Mountain, in Chattanooga Valley, containing a population of about 2,500 and a number of Chattanooga's large industries. Ridgedale lies at the foot of Missionary Ridge and contains, with East Lake, about 1,500 inhabitants, and is the site of several large industries. At East End there are also located some of the most important industries of the city.

These prosperous towns are the overflow population of the city of Chattanooga and are as much an integral part of the city as any of its wards. Electric street railroads traverse them at all points, also a Union Railway, and with the special system of roads radiating from the city, the means of communication are as easy as upon the paved streets of the city.

There are thirty-four postoffices in Hamilton county besides Chattanooga.

THE STATE OF TENNESSEE.

THE State of Tennessee lies between the boundaries of 35° and 36°, 30′ latitude, the zone of ideal temperate climate. It has an area of 42,050 square miles, comprising nearly 27,000,000 acres, and in 1897 its population is in round numbers 2,000,000, an increase of 500,000 since the census of 1880. The state is in the form of a quadrilateral, 432 miles in length from east to west, and 109 miles from north to south, taking the greatest length and width. It has more miles of navigable streams to the square mile than any state in the union, aggregating about 1,200 miles of navigable water.

The state of Tennessee, by reason of its peculiar topography, beginning in the eastern portion with chains of towering mountains, attaining an elevation of 6,600 feet above sea level, and descending in regular stages, penetrated by valleys of almost inconceivable richness, to the low Savannahs, which border the deep flowing Mississippi on the west, combines within its boundaries a greater variety of soils and products, a larger diversity of mineral resources, a more genial climate and richer scenic attractions than any state of the union.

The difference in altitude between the extreme eastern and western boundaries of the state is 6,000 feet, equivalent to eighteen degrees of latitude, and producing a flora and a climate within the confines of the state the same as if it extended along the Atlantic ocean, from North Carolina to Labrador. It is a fact that every crop grown in the United States is produced to a greater or a lesser extent in the state of Tennessee, and almost every mineral and timber found within the limits of our great union has been discovered in the state.

The average temperature in the center of the state is 58°, and about 1° lower in the northern part and 1° higher in the southern; the average annual rainfall is 54 inches. The average period between killing frosts, as ascertained by a series of observations continued for twenty-two years, is 189 to 200 days, being nearly seven months in the southern part of the state and a trifle over six months in the northern portion.

THE PRODUCTIONS.—The latest statistics of agricultural products are 1895, which give the farm products of the state as follows:

Wheat, bushels	7,443,000	Tobacco crop, pounds	30,915,966
Corn; bushels	63,650 000	Horses	334,668
Oats, bushels	9,768,818	Mules	198,171
Rye, bushels	203,956	Meat cattle	975,339
Buckwheat, bushels	17,753	Butter product, pounds	28,314 387
Barley bushels	44,485	Cheese, pounds	69 119
Potatoes, bushels	2,730,948	Honey crop, pounds	2,130,689
Hay, tons	766,276	Beeswax, pounds	63.290
Peanuts, bushels	253 088	Number of swine	1,940,649
Cotton, bales	190,579	Poultry	12,062 139
Number of sheep	519,770	Eggs, dozen	23,172,313
Wool product, pounds	1,397,666		

THE POPULATION—The white population of the state increased 17.05 per cent. between 1880 and 1890, the colored increased 7.73 per cent.; this rate has been maintained since 1890, and the ratio between the races in the state today is about 78 per cent. white, 22 per cent. colored; 82 per cent. of the total population is rural. The white population is nearly all of Anglo-Saxon and Scotch-Irish origin; the foreign element is not over 1½ per cent. of the whole.

THE RAILROADS—The total railroad mileage in the state is about 2,700 miles, penetrating seventy-four out of the 96 counties.

MINERAL WEALTH—The mineral wealth of the state seems almost fabulous. Nature poured forth her riches with a lavish hand in this commonwealth, and every mineral known to arts in the temperate zone is found, and many in inexhaustible quantity and of surpassing richness.

Iron ore and limestones are found in all three grand divisions of the state, and coal in abundant quantity in two divisions. The three lie in close juxtaposition in many portions of the state. The

production of iron ore averages nearly 500,000 tons per year, of which 60 per cent. is red hematite and 40 per cent. brown.

There are 87 coal mines in the state which produce annually about 3,000,000 tons of coal, of which about 750,000 tons are manufactured into coke.

There are 26 blast furnaces in the state, with daily capacity of 1,800 tons of pig iron; 12 are charcoal and 14 coke stacks. The annual pig iron product of the state is about 340,000 tons which is more than the total amount produced in United States in 1842.

The Tennessee marbles are famous the world over and exist in greatest abundance in East Tennessee. There are 200 varieties found in the state ranging in color from the dazzling white to jet black. There are now 22 qurries in operation in the state producing annually about 25,000 tons.

Copper, zinc, lead, manganese, gold, iron pyrites, sulphate of iron, gypsum, salt, nitrate of potassa, legnite, alum and slate exist in workable quantities. Oil wells of great value are being developed. A new industry and a great source of wealth which has developed in the state within the past four years is the great phosphate beds, discovered in Middle and West Tennessee, and hundreds of thousands of tons are now annually mined.

Building Stone. — Granite of a very rich color and great compactness is found in portions of the state; limestones and sandstones are everywhere abundant, and beds of burrh or millstones are worked; lithograph and oil stones of high quality are also found.

Potters' clay, fire and brick clays and kaolin are very abundant and are of excellent quality. Heavy spar and other mineral paints are found. Large deposits of asbestos exist in some localities; copperas is abundant and gypsum has been discovered.

The Timber. — The total acreage of woodlands and wild lands in the state is placed at 17,062,316 acres. The following varieties are the chief timbers of the state: white, blue and water ash, beech, birch, buckeye, red cedar, chestnut, wild cherry, cotton wood, cypress, dogwood, elm, balsam, black fir, gum, six varities of hickory, linden, locust, maple, red mulberry, from twelve to fifteen species of oak, white and yellow pine, blue, white and yellow poplar, sassafras as a shrub and as a forest tree, sycamore, black and white walnut, butternut, laurel, hornbeam, box elder, hackberry, persimmon, etc.

The Manufacturing Interests. — According to the census of 1890, $51,475,092 were invested in manufactories in Tennessee, with an annual outpnt of $72,355,286 manufactured products. The manufacturing interests of the state are diversified, consisting chiefly of iron, cotton, lumber, furniture, textile, leather, cotton seed products, etc.

The progress of Tennessee in manufacturing is shown by the following figures from the census: The manufacturing capital in 1870 was $15,595,295; in 1890, $51,475,092, increase, 350 per cent; hands employed, 1870, 19,412; 1890, 42,759, increase, 250 per cent; wages paid, 1870, $5,390,630; 1890, $16,899,351, increase, 300 per cent; raw material used, 1870, $19,657,027; 1890, $44,463,782, increase over 100 per cent; manufactured product, 1870, $34,362,636; 1890, $72,365,286, gain over 100 per cent. The progress since 1890 has been steadily maintained and will show even a greater growth in the census of 1900.

Educational. — The scholastic population of the state free schools by the last census was 694,437, and is now about 800,000; the average daily attendance is 400,000. There are 7,500 schools in the state, employing about 8,500 teachers. The total annual receipts for public schools approximates $3,000,000, over $7.00 per capita for each pupil attending.

There are 1,000 private schools in the state and a large number of universities and colleges. Tennessee contains more seminaries and colleges than any state in the South.

THE SOUTHERN STATES.

THE development of the Southern states in the past thirty years has never been equaled by any other section upon the globe. Its growth has been homogeneous and uniform in every branch of human endeavor — industrial, commercial, agricultural, educational and financial. It should be borne in mind that the war entirely destroyed the labor system in the South and annihilated industrial and commercial operations. Slave property and billions of other values were swept away; the whole section was impoverished. The widespread poverty, the universal bankruptcy and the absolute paralysis of business at the close of the war can scarcely be comprehended. Hundreds of thousands of the most active men of the South had died upon the battlefield or were physical wrecks; the industrial and social fabric was in a state of total collapse. The leaders of thought and promoters of industry were plunged into this condition from one of affluence and ease.

The recovery in thirty years seems unreal, but when the resources of the Southern states are considered it is easily understood. Briefly stated, the advantages of the South over any other portion of the globe, are: a healthful climate, genial and generous in winter and not so extreme in summer as to prevent outdoor labor; abundance of iron, coal and other mineral wealth within easy reach of the commercial centers; vast forests, fertile lands where every known product of the world can be cultivated at a minimum cost; more miles of navigable streams to the square mile than anywhere else upon the continent, with labor classes the cheapest and most contented known among civilized men.

That the world has recognized the possibilities of the South, and that the intelligence and energy of men have been quick to develop them, the following official figures taken from the United States census give indisputable proof.

(The following states are embraced in "The South": Alabama, Arkansas, Florida, Georgia, North Carolina, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee, Texas, Virginia and West Virginia.)

GROWTH OF THE SOUTH (U. S. CENSUS REPORTS.)

	1880	1890
Value of farm property.....	$2,314,000,000	$ 3,182,000,000
Real and personal prop.....	7,641,000,000	11,534,000,000
Manufacturing capital.....	257,244,000	657,288,000
Value of m'n'f'd products..	457,454,000	917,589,000
Annual wages.....	75,917,000	222,118,000
		1897
Invested in cotton mills....	21,976,000	120,000,000
Cotton seed oil industry....	3,500,000	30,000,000
		1895
Pig iron product (tons).....	397,000	1,702,000
Coal output (tons).....	3,944,000	10,000,000
		1890
Mineral output.....	7,000,000	57,000,000
		1896
Cotton spindles	669,754	2,770,000
Bales of cotton consumed..	233,000	915,000

The following shows the percentage of increase in material values of the South compared to the balance of the United States during the period between 1889 and 1890, according to the United States census:

Value of real and personal property, increase in the South 50 per cent; New England and Middle States, 22 per cent.

Value of farm property increase in the South, 37 per cent.; other sections, 30 per cent.

Investments in manufacturing, increase in the South, 156 per cent.; balance of the country, 121 per cent.

EDUCATIONAL.—The revenues for school purposes in the ten Central Southern States in 1870 were $2,500,000; in 1894,

$11,000,000. The school attendance in the same states was in 1894 2,800,000 against 860,000 in 1870; in 1870 there were 14,000 school houses and 15,000 teachers in these ten states; in 1894, 58,000 teachers and 53,000 school houses in the same states. In 1894 the percentage of enrollment of the public schools to the entire population was 21.67 in the South Atlantic States; 23.49 in the South Central states; 21.50 in the North Atlantic States; 19.11 in the Western States; 25 in the North Central States. In 1890 the total enrollment to population in the schools of the South was 22 per cent. against about 11 per cent. in the decade preceding. These figures show that the development of the South has not been merely in material wealth but in educational progress as well.

The Cotton Crop. — The cotton crop of 1896 amounted to 9,837,000 bales, which was 82 per cent. of the total production of the world. It is the largest export crop of any nation on the earth and brings more money to the United States from abroad than all other agricultural products combined. The cotton crop of the South is practically restricted to a group of states comprising less than one-fourth of the total area of our country, yet its value is exceeded only by the corn crop which is cultivated in every state in the Union. The figures given above show great increase in the cotton manufacturing in the Southern States. It is inevitable that the cotton mills will eventually be placed where the cotton grows, and with the magnificent water powers of the South, with the cheapest fuel upon the globe, with a humid climate, best adapted to textile manufacturing, with an abundance of desirable labor to whom the cost of living is much less than in the North, owing to the abundance of farm and garden products and the mildness of the climate, the conclusion is irresistible that the South will increase with each succeeding year the number of its cotton mills. Within the last two years the increase of spindles in the Southern States has been 882,000 while in the whole of the New England States the increase has been only 671,000; the percentage of increase in the South was 39.5 while in New England it was 5.32. Within the past four years no less than $7,500,000 of New England capital has been invested in large cotton mills in different portions of the South.

Iron. — The iron resources of the South cannot be comprehended. By a generous impulse of nature the great beds of iron ore, coal and limestone, the three primary constituents of iron, lie side by side in the exhaustless measures of the South. Southern iron is today being manufactured as low as $5.20 per ton and is successfully competing in the open market with the iron of the entire globe. The South exported within the past eight months over 100,000 tons of iron to Oriental and European markets, underbidding the furnaces of England, Germany and Belgium. With the improvements in modern methods the Southern irons are becoming adapted to the manufacture of steel, and soon there will be witnessed a development in the steel industry in the Southern States as marvelous as the magical growth in the production of iron.

Farm Products. — The farm labor in the South has greatly improved in recent years; the adoption of more careful and intelligent agricultural methods; a wider use of improved agricultural machinery and a greater diversity of farm products have greatly increased the wealth of the South. Of the arable land in the Southern States only 36 per cent. is "improved," of which 21 per cent. is under cultivation.

The farm products can only be briefly summarized and the amount of the crops is in round numbers as follows, per year:

Corn	550,000,000 bushels
Wheat	50,000,000 "
Oats	80,000,000 "
Tobacco	450,000,000 pounds
Sugar and molasses	320,000,000 "
Rice	170,000,000 "

The annual hay product of the South is estimated to be worth $25,000,000; potatoes, $17,000,000; fruit, $40,000,000; there are a large number of minor crops, such as flax, hemp, and peanuts, which grow in great richness and annually amount to millions of dollars.

The farm lands of the South are cheap and the markets, as a rule, convenient. The prices of land per acre range from 25c (the cost of swamp lands) to $5, the price of cheaper farm lands.

Timbers.—The census shows that there are 183,000,000 acres of timber forests in the South which are practically untouched and which are, in truth, the reserve timber lands of this nation. All the timbers known to this country are found within the forest areas of the South and are suitable for every line of manufacture. The South is far more heavily wooded than the rest of the country and contains more acres of woodland and more feet of timber than all the rest of the country combined. It has 40.9 per cent. of its land wooded where the rest of the Union has only 20.9 or about one-half as much. Compared with other states and countries it stands as follows:

Percentage of Forest to Total Area.

EUROPE.

Russia	30 per cent
Germany	26 "
France	16 "
Holland	7 "
Great Britain	5 "

UNITED STATES.

Massachusetts	23 per cent
New York	22 "
Pennsylvania	30 "
Minnesota	15 "
Nebraska	9 "
California	3 "
Southern States	40 "

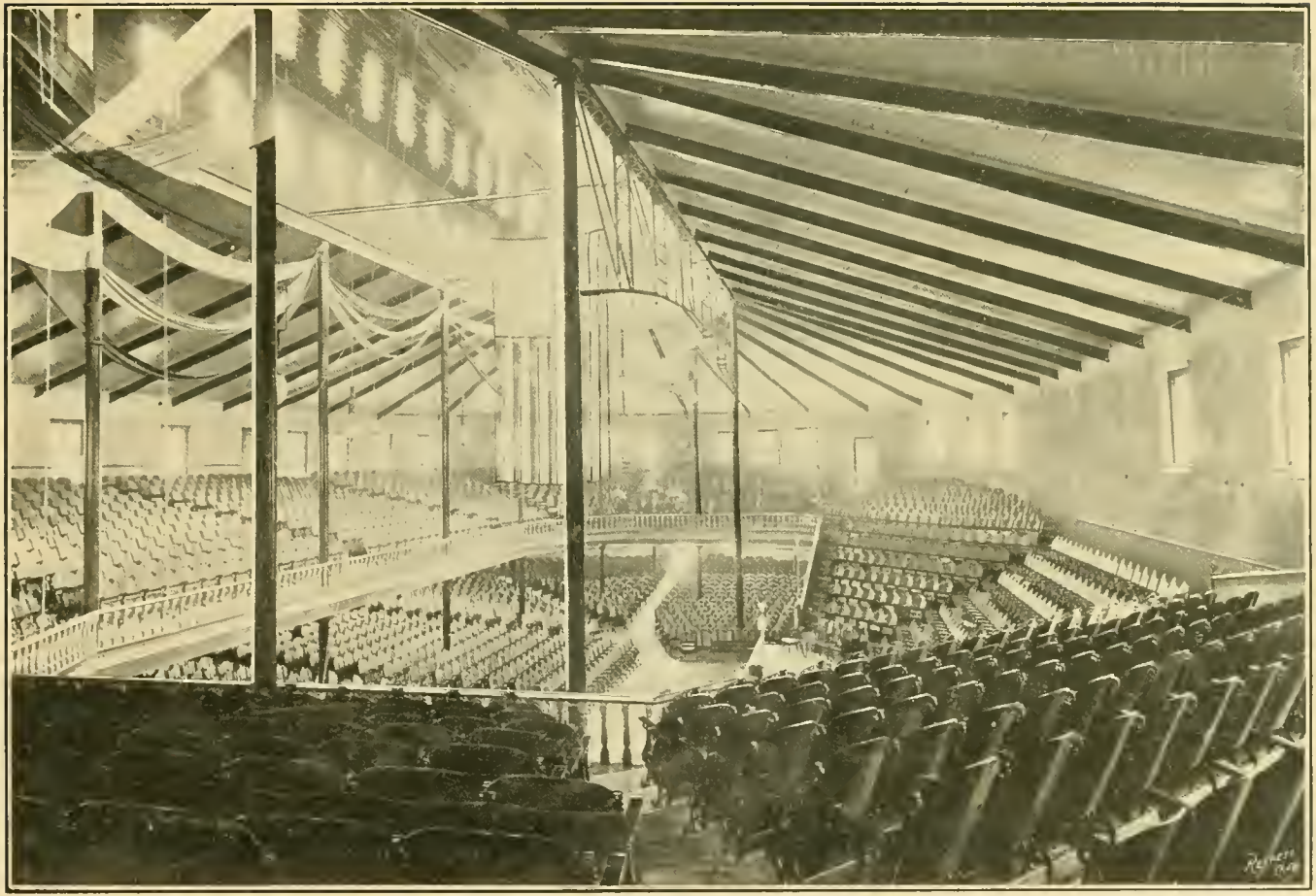
The lumber contained in these vast forests of the South consist of 174 important varieties, of which 56 may be regarded as distinctively valuable and useful in various kinds of manufacture.

The Population.—The population of the Southern States by the Census of 1890 is 18,319,714 against 15,157,393 in 1880, an increase in ten years of nearly 20 per cent. The population at this writing is in excess of 20,000,000. Although the urban population of the South has increased greatly, still a much smaller proportion of its population lives in the towns than in the North and West. There is very little increase in foreign immigration and the percentage of foreigners in the Southern States is very small. The density of the Southern States as compared to other countries in the world is shown by the following table:

Density of Population per English Square Mile.

United States of America	21
Germany	236
Belgium	541
Great Britain and Ireland	311
France	184
Denmark	148
Greece	88
Russia	52
Southern States between	8 and 9

The South seems to be only on the threshold of its period of greatest growth. When it is remembered that the Southern States contain an area of over five hundred millions of acres, with a population of twenty millions, and is enriched with more natural resources of coal, iron, cotton and timber, with greater water powers, with more navigable rivers, with a more genial climate and with more of the elements that enter into profitable manufacturing than any other area upon the globe, and yet has $300,000,000 less capital invested in manufacturing than the one state of Pennsylvania, the area of which is one-eighteenth of the total area of the South, the possibilities of the Southern States begin to appear.



The Interior of The City Auditorium.

The illustration shows a partial interior view of the New City Auditorium, seating capacity Five Thousand.

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